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THE TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA WITH THE USE OF THE ENDAURAL APPROACH FOR THE RADICAL MASTOIDECTOMY*

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In the treatment of chronic suppurative otitis media we aim to remove the danger of intracranial extension, to help the hearing and to end the chronic aural discharge. From the patient's point of view the hearing may be the most important consideration when both ears are affected or when the diseased ear has the better hearing. In this discussion I wish to emphasize methods of preserving and improving the hearing in cases of chronic suppurative otitis media.

To be effective the treatment of chronic discharging ears must be based on a clear understanding of the etiology and of the exact pathology in each case that is responsible for the chronicity of the otorrhea.

PATHOLOGY

Chronic suppurative otitis media arises in one of two ways. It may come on insidiously in a previously intact drum membrane as shall be described later on. More often, chronic discharging ears are the result of a special variety of acute suppurative otitis media known as acute necrotic otitis media. The distinction between the ordinary acute suppurative otitis media and acute necrotic otitis media is quite important because, for practical purposes, the ordinary acute suppurative otitis media never becomes chronic and always heals, generally with normal hearing. On the other hand, acute necrotic otitis media frequently does not heal but ends in a chronic discharging ear, or if it does heal there is usually some impairment in hearing. A review of the pathology of the two types of acute otitis media will show clearly the sharp distinction between them.

The vast majority of acute otitis medias are the ordinary variety. They begin as an inflammation of the mucosal lining of the eustachian tube, middle ear and mastoid air cells. Inflammatory thickening and edema of the mucous membrane is accompanied by an outpouring of serum and by the migration of polymorphonuclear leukocytes from the dilated capillaries into the mucosa and then into the lumen of the middle ear and mastoid cells to form the pus. The drum membrane is opened by paracentesis or it perforates spontaneously, but in either event the perforation remains only just large enough to allow the pus to escape and as soon as the infection has run its course, in one to three weeks on the average, the perforation closes and the hearing returns to normal. In more severe infections, progressive thickening of the mucosal lining of the middle ear and mastoid cells begins to obstruct the free drainage of pus from the mastoid cells. The increased pressure of this retained pus and the marked increased vascularity with venous stasis results in a local acidosis which dissolves the calcium from the mastoid cell partitions. This process of decalcification is called halisteresis. Osteoclasts remove the softened bone until the discrete mastoid air cells coalesce or melt together into a large cavity filled with hypertrophied mucosa,

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granulations and pus. When this coalescent mastoiditis is opened about the third or fourth week of the otitis media, the bone is found to be markedly softened due to the decalcification that has occurred. The mastoid cells are partly coalesced into cavities filled with pus and granulations and the lateral sinus or the dura may be found lying exposed in this cavity. But there is no true necrosis in this mastoid; the destruction of bone has been an orderly physiologic process. The bone that is being removed is living bone and the moment the pressure of the retained pus is released the process of decalcification and bone removal is reversed to one of bone formation and calcification. The purpose of the simple mastoid operation is not to remove dead bone or necrotic tissue, but is to provide perfect drainage from the obstructed cells by a complete anatomic mastoidectomy. Although the operative findings are often erroneously described as "necrosis," there is actually no true gross necrosis of soft tissue or bone in acute coalescent mastoiditis.

Acute suppurative otitis media, even if complicated by a coalescent mastoiditis that goes unoperated, tends to clear up spontaneously provided the patient does not die of an intracranial complication. Operation is done to lessen the danger of intracranial extension and not to prevent a chronic otitis media, because the ordinary acute suppurative otitis media does not become chronic. Even when the suppuration continues for months, the perforation in the drum membrane does not enlarge but always remains just large enough to allow the pus to escape, and when healing finally occurs the drum membrane heals with hardly a scar and with normal hearing.

In marked contrast to the ordinary acute suppurative otitis media is acute necrotic otitis media. This condition is seen only in infections of high virulence that occur in patients with lowered resistance as the result of a systemic infection such as scarlet fever, measles or influenza. However, the majority of otitis medias that occur in scarlet fever and measles are the ordinary variety and only a minority take the necrotic form. Acute necrotic otitis occurs most often in young children with scarlet fever. The first evidence in necrosis is seen in the drum membrane which perforates spontaneously relatively early in the otitis, following which the perforation rapidly enlarges as the drum membrane becomes necrotic and sloughs away. The drum membrane may be partially or completely destroyed within a few hours or days. This is in sharp contrast to the ordinary acute suppurative otitis media where the perforation always remains pinpoint in size and this difference allows recognition of an acute necrotic otitis quite early in the infection. The necrosis with sloughing is due to a thrombosis of the small blood vessels resulting in prompt death of the tissue—a localized gangrene. The mucosa of the middle ear may likewise become necrotic and slough away, leaving bare white bone. In the very severe cases of acute necrotic otitis, portions of the adjacent bone may become necrotic and sequestrate. The sulcus tympanicus, the ossicles and even the mastoid cells may become necrotic. At operation, the dead necrotic mastoid cells show up in sharp contrast to adjacent living coalescent mastoid cells, the coalescent cell walls being softened and very vascular while the necrotic bone is hard, white and bare without a blood supply or adherent granulations. If sufficient time has elapsed before operation there will be a sharp line of demarcation where the dead bone is being separated off as a sequestrum from the surrounding live bone.

In the milder cases of acute necrotic otitis the necrosis is confined to the drum membrane where a large, often kidney-shaped, central perforation is found, but the margins of the drum membrane and the mucosa of the middle ear remain intact. Some of these large central perforations heal and close by the formation of a thin scar. In many cases, however, the perforation remains open with a chronic discharge due to debris and saprophytic infection which have gotten into the middle ear through the large perforation and which act as a constant irritant. Since the dis-

charge in these cases is coming from the mucosa of the middle ear it is always mucoid in character. When first seen there may be a foul odor but with cleanliness and the use of an antiseptic the odor quickly disappears and the discharge becomes odorless. In this type of chronic suppurative otitis media there is no tendency to bone invasion and no danger of intracranial extension. The physician, therefore, is concerned only with stopping the discharge and improving the hearing. Boralcohol drops twice daily for a week may be used to eliminate the foul odor. Thereafter the dry treatment will give the best results. Dry wipes are followed by the insufflation of boro-iodine (Sulzberger) powder every few days until the ear is dry.

Once the ear is dry an attempt is made to improve the hearing by closing the perforation. The application of a patch covering the perforation will often give a surprising hearing gain. The normal migration of the outer layer of the epithelium of the drum membrane will carry the patch off the drum membrane and on to the posterior canal wall in two to four weeks so that the patch needs to be replaced from time to time. The presence of a well placed patch, however, has a definite stimulating effect on the margins of the perforation and in many cases the perforation will gradually close. I have found that cigarette paper moistened with 1 per cent phenol in glycerine makes the best patch. A piece of paper about five or six mm. square is carried into the canal with a tiny pair of alligator forceps and is then gently pressed against the drum membrane with a tiny ear hook and a tiny cotton applicator moistened in the 1 per cent phenol-glycerine. If the hearing is going to be benefited by closing the perforation the patient will instantly notice the improvement the moment the patch is applied and hearing tests will confirm the definite gain in hearing. Gently traumatizing the edges of the perforation by wiping with a tiny cotton applicator or by the application of trichloracetic acid before applying the paper patch acts as an added stimulant to closure. Besides improving the hearing, an advantage in closing these dry central perforations is that the susceptibility to recurrences of the mucoid discharge from getting water into the ear or from upper respiratory infections is thereby greatly reduced.

CHOLESTEATOMA

In the more severe cases of acute necrotic otitis media not only the central portion of the drum membrane but the annulus and sulcus tympanicus slough away along with the mucosa of the middle ear spaces. Healing occurs in these cases by the ingrowth of stratified squamous epithelium from the outer canal to line the denuded middle ear. If the skin grows up into the attic its desquamating outer layers will collect as masses of whitish debris called cholesteatoma. Because these cases of cholesteatoma are secondary to an acute necrotic otitis media, they are called secondary acquired cholesteatomas. Saprophytic infection of the debris occurs sooner or later and results in a foul purulent discharge devoid of mucus.

The diagnosis of cholesteatoma depends entirely upon the clinical examination of the ear and careful inspection will show that skin instead of mucous membrane lines the middle ear cavity and extends up into the attic. Irrigation of the attic, washing down the whitish flakes of cholesteatomatous debris confirms the diagnosis. The x-ray is of value for diagnosis only when the cholesteatoma has extended into the antrum and has resulted in a definite concentric enlargement of the antrum.

The treatment of cholesteatoma consists simply in removing the accumulated debris from the cavity in the attic or antrum. In most cases this can be accomplished by irrigating with 95 per cent alcohol through an attic cannula once or twice a week until the ear is clean, dry and odorless. If repeated attic irrigations do not result in a clean, dry and odorless ear we know that we are dealing with a cavity too large and inaccessible to be rendered dry by local treatment. It then becomes necessary to do a radical mastoidectomy, for a cholesteatoma cavity containing moist debris is

actively enlarging and is a potential hazard to life, whereas a dry, clean and odorless cholesteatoma cavity is inactive and harmless. The purpose of the radical mastoid operation is to convert the inaccessible cavity into an accessible one by converting the middle ear, the external auditory canal and the cholesteatoma cavity into one common, easily accessible cavity.

A third type of chronic otitis media may result from an acute necrotic otitis. In these cases a focus of low grade bone necrosis persists long after the acute necrotic process has cleared up. The discharge has a rather characteristic penetrating foul odor that persists in spite of the prolonged use of antiseptics and cleanliness. The perforation in these cases may be central in type, with pink mucosa lining the middle ear. The radical mastoid operation is required to remove the area of bone necrosis which is found most often around the antrum.

These three varieties of chronic suppurative otitis media that have just been described are all secondary to an acute necrotic otitis media. There is another variety of chronic suppurative otitis media that is not preceded by any sort of acute otitis media. In these the chronic discharge begins insidiously and when the ear is inspected the pars tensa of the drum membrane is found to be intact, but there is a perforation in Shrapnell's membrane. The origin of this type of chronic suppurative otitis media has only recently been understood and if you will be on the lookout you will see the earliest stages of the disease in patients who as yet have no ear complaint. As you know, Shrapnell's membrane or the pars flaccida of the drum membrane has no tense fibrous tissue layer to hold it rigid. When there is a negative pressure in the attic, Shrapnell's membrane becomes much more sharply retracted than the pars tensa due to this lack of rigidity and if the negative pressure continues the sharply retracted membrane becomes permanently adherent to the inner wall of the attic. This permanent retraction of Shrapnell's membrane may be caused by prolonged occlusion of the eustachian tube by adenoid hypertrophy. It may also occur as a result of an infantile otitis media, perhaps from meconium in the eustachian tube at birth. This infantile otitis interferes with the normal resorption of the embryonic connective tissue that fills the middle ear spaces at birth so that parts of the attic may never become properly aerated. As the embryonic connective tissue becomes fibrosed and contracts, Shrapnell's membrane is drawn sharply inward. Whichever mechanism is at work, the sharply retracted pars flaccida falls into an irregular pit just above the short process of the malleus. If this pit is deep enough, it will become filled with the desquamated cells from the outer epidermal layer of Shrapnell's membrane. The pressure exerted by the enlarging plug of epithelial debris then causes the pit to enlarge. As the pit or sac enlarges, saprophytic infection of the cholesteatoma debris occurs with the onset of a foul discharge. The lining of this cholesteatoma cavity consists of the invaginated Shrapnell's membrane, while the attic perforation leading to the cavity represents the first tiny pit-like retraction of Shrapnell's membrane. This type of cholesteatoma Wittmaack calls the true or genuine cholesteatoma. I prefer the less confusing name of primary acquired cholesteatoma to differentiate it from the secondary acquired cholesteatoma, secondary to an acute necrotic otitis. As long as the cavity in the attic contains moist cholesteatoma, it gradually enlarges and is, therefore, a potential hazard.

The treatment of primary acquired cholesteatoma is the same as of secondary acquired cholesteatoma, namely, mechanical removal of the cholesteatoma debris by attic irrigations. If the cavity is too large to be kept clean, dry and odorless by attic irrigations, a surgical operation is required to render the cavity more accessible. The radical mastoid operation will accomplish this but it also will seriously impair the hearing which may be almost normal in cases where the cholesteatoma sac has not grown down behind the pars tensa, and where the tympanic cavity is normal. In

many persons who require operation the incus has been destroyed, but the hearing may still be close to normal. To preserve this good hearing, the Bondy modified radical mastoid operation is indicated. This becomes especially important when the operated ear is the better hearing ear.

A brief mention of a third type of cholesteatoma should be made, the type which Wittmaack calls primary cholesteatoma. This rare condition is the result of an embryonic epidermal rest that may be located anywhere in the bones of the skull. Cholesteatomatous debris formed by the stratified squamous epithelium of the embryonic rest accumulates and results in a slowly enlarging, smooth, rounded bone defect. There is no connection with the middle ear spaces and, therefore, no infection odor or pus. The condition is usually symptomless and is found accidentally in x-rays of the skull.

There are three more varieties of chronic suppurative otitis media that are occasionally seen. The first is a chronic osteitis of many years' duration that dates from what appeared to be an ordinary acute suppurative otitis media and that is characterized by frequently recurring exacerbations with fever, pain and discharge. The drum membrane perforation is usually tiny and central, and the discharge is mucoid and odorless. The chronicity in these cases is due apparently to the type of infecting organism. Complete surgical removal of the infected bone, usually by a radical mastoidectomy, is required to produce a cure.

Secondly, there are the cases of chronic otorrhea associated with a similar profuse chronic mucoid or mucopurulent discharge from the nasal and sinus mucosa, and often from the bronchial mucosa, on an allergic basis. Control of the underlying allergy will usually result in a cessation of the chronic tenacious mucopurulent aural discharge.

Thirdly are the cases of tuberculous otitis media. Tuberculosis of the middle ear is usually acquired through the eustachian tube, either from infected milk due to the bovine type of organism, or from infected sputum from the lungs due to the human type of tubercle bacillus. Tuberculous otitis media is characterized by its painless onset, by the insidious onset of a scanty serous discharge, by the hearing which is impaired more than would be expected by the visible pathology, and by the perforation in the drum membrane which tends to enlarge and which may be multiple in the early stages. Sequestration of small areas of bone occurs commonly, and the granulations in the middle ear are pale and fibrous. Demonstration of the tubercle bacilli by smear and guinea pig inoculation confirms the diagnosis of tuberculous otitis media.

TYPE OF OPERATION

For three years I have been using the endaural approach for all radical and modified radical mastoidectomies. The endaural approach had been used from time to time for many years but inadequate exposure to the operative field made the endaural operation awkward, difficult and hazardous. About twelve years ago Lempert devised an extracartilaginous endaural incision by which a more adequate exposure could be secured. The advantages of the endaural approach are the lessened trauma to soft tissue and cartilage, the simplified plastic to the external auditory canal, the simplified after care, and the improved end-results. Lempert described a special type of incision for the radical mastoid operation. I do not use this but instead I use the incision which he described for the simple mastoid operation.

TECHNIC

The operator should use a headlight for illumination. An ordinary nasal speculum is used to spread the meatus open. The special Lempert spear-shaped knife should be used. The first incision begins at 12 o'clock at the junction of the hairy and nonhairy portion of the canal and is carried down the posterior canal wall slanting outward to emerge at 7 o'clock for the right ear, 5 o'clock for the left. This incision stops at the edge of the auricular cartilage. The second incision begins at the same point as the first, at 12 o'clock, and is carried directly upward between the tragus

and the auricle to a point midway between the meatus and the upper edge of the auricle. The third incision connects the lower extremity of the first with the upper extremity of the second incision following the anterior border of the auricular cartilage. The three incisions, first outlined, are then deepened to the bone. A flat periosteal elevator is inserted into the first two incisions and the periosteum is elevated over the entire mastoid process. The loosened triangular piece of skin, subcutaneous tissue and periosteum is grasped with a hemostat, freed with scissors from its few remaining shreds of attachment and is discarded. A special self-retaining retractor is then inserted. From this point on the operation is completed the same as through the postauricular incision with the exception of the plastic.

Briefly, the skin of the bony superior and posterior canal wall is carefully separated from the bone and pushed down and forward. The cortex is removed with a gouge beginning in the region of the suprameatal triangle just behind and above the suprameatal spine. As soon as the antrum is entered the extent of the cholesteatoma cavity is determined with a blunt probe and the overhanging cortex is removed with a Kerrison rongeur until all parts of the cholesteatoma cavity are clearly visible. The superior wall of the bony external auditory canal is then thinned down with the curette, working from the antrum and aditus outward. The thinned down bone may be removed with a fine rongeur until the attic, aditus, antrum, middle ear and external auditory canal are one common cavity.

Fine manicure scissors are now used to cut the skin of the superior canal wall so that it can be folded back over the facial ridge. Remnants of drum membrane or ossicles are removed and granulations and softened bone in the middle ear are gently curetted, avoiding the facial nerve and stapes. The completed cavity is carefully cleaned of bone fragments, the skin flap is folded back over the facial ridge and held in place with a small gauze pack, the cavity is filled with sulfathiazole powder and sterile vaseline is applied to the incision. No sutures are required. The completed cavity should be as small as possible but with all bone irregularities and softenings curetted out, and with no overhangs or inaccessible pockets. The greatest advantage to the endaural approach is that the operation is done through the same opening, that the ear will be observed through the rest of the patient's life, and the inaccessible pockets so frequent after the postauricular radical are, therefore, entirely avoided.

The Bondy modified radical mastoid operation is done exactly the same as the classical radical except that care is taken not to disturb the ossicles and the pars tensa of the drum membrane. The same skin flap is cut to cover the facial ridge and the completed cavity otherwise looks the same.

AFTER-CARE

The after-care is important to a satisfactory result after the endaural operation. On the fifth day the incision which has adhered together must be spread wide open, the packing is removed and the cavity is cleaned of blood clots. Sulfathiazole powder is blown into the cavity. Thereafter the incision must be spread wide open and the cavity dried out every second or third day until it is completely dry and healed, which occurs in four to eight weeks on the average. All postoperative dressings must be done under the strictest sterile precautions.

Bacillus pyocyaneus is frequently found in cholesteatomas and may cause a troublesome, foul, brownish discharge after operation. Cleanliness, air and tincture of merthiolate 1:1,000 are usually effective. The patient returns home as soon as the pack is removed on the fifth day and after his first office visit one week after operation, a piece of sterile cotton is worn in the ear at night and on the street but indoors the ear is left open to the air.

SUMMARY

One hundred consecutive cases of chronic suppurative otitis media seen in office practice were summarized. There were 31

patients with the central type of perforation following an acute necrotic otitis, all treated conservatively. There were 36 patients with secondary acquired cholesteatoma, 12 of whom required radical mastoidectomy. There were seven patients with chronic osteitis, all of whom required radical mastoidectomy. There were 20 persons with primary acquired cholesteatoma, eight of whom required a Bondy modified radical mastoidectomy. There remained a miscellaneous group of six cases, including two of allergic otitis media and two of tuberculous otitis media.

The hearing was definitely improved in 59 per cent of those treated conservatively.

After the radical mastoid operation, the hearing was worse as often as it was improved.

After the Bondy modified radical mastoid operation the hearing was never worse and in 67 per cent it was definitely improved.

The Bondy operation is indicated in cases of primary acquired cholesteatoma requiring operation, to preserve the hearing. This is especially important when the ear operated upon is the better hearing ear.

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THE INTERRELATIONSHIP OF GASTROINTESTINAL AND CARDIAC DISEASE*

M. D. HARGROVE, M. D.
SHREVEPORT

The human body is undoubtedly the most perfect machine known to man. In health, its various parts function so smoothly that we are largely unaware of their existence. But, if some part of that highly sensitive organism, because of disease, fails to function properly, it may cause disease in other organs remotely connected or at least may disturb their function. Thus may gastrointestinal and cardiac disease be related. Proper function of the gastrointestinal tract is dependent upon good cardiac function and failure or impending failure of the circulation is often first manifested by gastrointestinal symptoms. Likewise, disturbed function of the gastrointestinal tract may be manifested by pain similar in character and distribution to cardiac pain or by functional disturbances of the heart as palpitation, premature beats and smothering sensations.

*Read before the sixty-second annual meeting of the Louisiana Medical Society, Shreveport, April 22, 1941.

GASTROINTESTINAL SYMPTOMS

Flaxman,[1] in a review of 1,500 cardiac patients, found that 160 (10.6 per cent) had 243 gastrointestinal manifestations. The heart disease in these patients was due to all etiologic factors, such as hypertension, rheumatic fever, coronary artery disease, syphilis, and thyrotoxicosis. He has listed the gastrointestinal manifestations as follows: Epigastric pain, abdominal distress, right upper quadrant pain, vomiting, nausea, belching, diarrhea, obstipation, flatulence, dysphagia, hiccough, and hematemesis. Such symptoms from cardiac patients are not unusual and may appear early or late. Epigastric pain is perhaps the most frequent of gastrointestinal symptoms due to heart disease. It may vary from a mild sensation of epigastric fullness to severe excruciating pain. It is generally not related to meals, though at times aggravated thereby and is not relieved by the usual methods employed. The distress may be due to acute congestion of the liver, from right ventricular failure or to coronary disease. Such a relationship is well illustrated by this rather common occurrence.

CASE NO. 1

Mr. J. E. D., 65 years of age, was seen on October 10, 1935, complaining of epigastric pain and nausea. His illness began on the night of October 8, with pain in the epigastrium attributed to indigestion. The pain persisted during the following day and was associated with nausea. Late in the evening he consulted a doctor, who attributed the pain to indigestion. The pain continued through the night, radiating up under the sternum, to the arms and across the upper abdomen. When seen on the morning of October 10, he still had some epigastric distress radiating up under the sternum. There had been no serious illness in the past, no indigestion, and no symptoms referable to the heart. There was no history of substernal distress on exercise.

His temperature was 98.4° F., pulse 90, and the blood pressure was 146/90. The heart was not appreciably enlarged, the rhythm was regular, and there were no murmurs. There was slight tenderness in the mid-epigastrium on deep pressure, but the abdomen was otherwise negative. An electrocardiogram showed the ST segments elevated in the second and third leads, with slight inversion of T_2 and definite inversion of T_3. His white cell count was 15,350, with 79 per cent polymorphonuclears. The diagnosis of coronary occlusion with myocardial infarction was made and with appropriate care, he made an excellent recovery.

COMMENT

This is not an unusual occurrence. Coronary disease often manifests itself by epigastric pain, which usually radiates substernally. Frequently there may be doubt about the diagnosis for a time, but with observation and the aid of the electrocardiogram and other laboratory procedures, a definite diagnosis can be made.

The confusion of gastrointestinal and cardiac symptoms is also illustrated by the following case:

CASE NO. 2

Mrs. O., 70 years of age, was seen on January 10, complaining of mild abdominal distress, characterized by some fullness, gas, and loss of appetite. She was a rather obese elderly woman in no acute distress. The blood pressure was 160/90 and there was moderate cardiac enlargement, with a systolic blow at the apex. The rhythm was regular and there were no congestive phenomena. The abdomen was quite fat, but no other abnormalities could be made out. Her symptoms were attributed to a mild gastrointestinal upset. About ten days later, I was again asked to see her for a similar complaint. I was delayed perhaps an hour, and on arriving, found her in acute left ventricular failure. She improved with morphia, rest and digitalization for a few days, but following a second attack, expired about three weeks later from congestive failure and pneumonia. The electrocardiogram showed definite left axis deviation, with slurred and widened (0.12) QRS complexes. $ST_{1, 2, 4}$ were depressed and ST_3 elevated. There were occasional ventricular premature beats.

COMMENT

Undoubtedly the gastrointestinal symptoms present on my first visit were due to her heart and not to primary disease of the gastrointestinal tract. Impaired circulation from old hypertensive disease, with moderate congestion of the gastrointestinal tract probably accounted for the fullness, gas and loss of appetite. Perhaps adequate digitalization at that time might have prevented or postponed the left ventricular failure which developed about ten days later. Such cases as this are not unusual and illustrate the reciprocal relationship of the symptomatology and function of gastrointestinal tract and heart.

In discussing the relationship of gastrointestinal and cardiac disease we are at once confronted by several pertinent questions. Can chronic heart disease alone produce disease of the gastrointestinal tract or aggravate pre-existing disease? Can disease of the gastrointestinal tract produce chronic myocardial changes in a previously normal heart? Can it aggravate an already existing chronic myocardial state?

Proper function of the gastrointestinal tract is of course dependent upon good cardiac function. Congestion of the abdominal organs occurring in heart failure is always associated with impaired function of these organs but any organic disease present is independent of the congestion due to heart failure. The one exception to this may be found in the liver after long standing chronic congestion in which the liver becomes reduced in size and weight, very firm, of a dark, cyanotic brown color, the capsule thickened, and the surface irregular but rarely nodular. The changes here are due to hepatic fibrosis, beginning in the center of the lobule and thus distinct from Laennec's cirrhosis.

Jaundice, a finding usually associated with abdominal disease, may be due to heart failure. There are three main mechanisms in its production: (1) Impairment of liver function; (2) increase in the production of bilirubin; (3) diminution in blood flow through the liver. But even the presence of jaundice in heart failure does not indicate organic liver disease.

Can disease of the gastrointestinal tract produce chronic myocardial changes in a previously normal heart? It seems very unlikely that chronic myocardial changes can be produced in this way, but that existing chronic myocardial states may be aggravated, seems unquestioned. Gallbladder disease has been considered in this respect

more than any other organ of the gastrointestinal tract. The frequent association of the two diseases in the same patient has helped to focus our attention on them.

RELATION BETWEEN CARDIAC AND GALLBLADDER DISEASE

Tennant and Zimmerman[2] found a significant association between heart disease in general and gallbladder disease. Breyfogle,[3] in a statistical study of 1493 necropsy records, concluded that it indicated a striking and positive association, regardless of age or sex, between gallbladder disease and coronary artery disease when the latter is regarded as the direct cause of death or the primary contributing factor toward death. Bean,[4] in a study of 300 cases of infarction of the heart, found gallbladder disease present in 47, or 17.5 per cent, of 269 patients. Twenty-one, or 44 per cent, of the cases were in females. He found an absolute correlation with arterial disease, since all with gallbladder disease had both general and coronary arteriosclerosis. He concluded that the high incidence of gallbladder disease and especially of stone formation in this group was another manifestation, as is obesity of a derangement of the lipoid-cholesterol metabolism, and that stone formation is not of etiologic significance in arterial disease, but rather is an expression of a fundamental fault which underlies both processes.

The presence of electrocardiographic evidences of myocardial disease in patients with gallbladder disease, which have either reverted to normal or been greatly improved following removal of the gallbladder, has also directed our attention in this direction. Fitz-Hugh and Wolferth[5] reported six cases with electrocardiographic evidence, chiefly flat or inverted T waves in the first two leads and cardiac symptoms chiefly anginoid in character, that following cholecystectomy showed reversal of the electrocardiographic findings to or approaching normal with improvement in cardiac function. They concluded that not only may gallbladder disease injure the myocardium but that the process, at least to a certain extent, is reversible and that the majority of patients with the coronary and myocardial types of heart disease, or with symptoms and electrocardiographic findings suggestive of these disorders, who have associated gall stones, are usually greatly benefited by skillful and judicious gallbladder surgical procedures.

White,[6] in the discussion of a case of gastrointestinal disease complicated by silent coronary disease, said: "It is true that gastrointestinal disease, especially gall stones, may induce functional cardiac and general circulatory disturbances, especially premature beats, paroxysmal tachycardia (even in the form of auricular fibrillation), and vascular collapse but that it can actually and directly produce organic myocardial, endocardial, or coronary disease is extremely unlikely. Heart failure or angina pectoris or electrocardiographic anomalies may, however, be precipitated and perhaps for the first time brought to light by disease below the diaphragm but no more than any other strain, and certainly not fundamentally caused thereby."

In discussing the relationship of gallbladder disease to heart disease it has been suggested that gallbladder disease may affect myocardial function since: (1) The presence in the circulating blood of bile salts and bile pigments incident to acute attacks has a toxic effect on the heart and circulation; (2) the infected gallbladder may act as a focus of infection; (3) the colic in gallbladder disease could cause a derangement in myocardial function by reason of the severe pain and the somewhat similar innervation.

The frequent association of the two diseases is common as illustrated by the following case:

CASE NO. 3

Mrs. O. W. K., 51 years of age, consulted me on April 19, 1938, complaining of pain in the chest on exertion, upper abdominal distress, and hemoptysis, The pain in the chest was substernal, precipitated by exertion and relieved by rest. Indigestion had been present for several years, consisting of regurgitating of food, and on several occasions severe epigastric pain.

She was 51 years of age, five feet, two inches tall and weighed 160 pounds. There was a prominent suprasternal pulsation, the heart was enlarged

to the left, the rhythm was regular, there were no murmurs, and the blood pressure was 170/100. There was slight tenderness in the upper right quadrant in the region of the gallbladder.

The electrocardiogram showed no significant changes, but exertion invariably produced substernal pain. She was placed on a modified rest routine with dietary instructions, but failed to improve. X-ray of the gallbladder following the dye, and of the gastrointestinal tract, reported gallbladder of normal function, negative stomach and pathologic appendix. Because of the characteristic gallbladder symptoms she was operated upon, on December 19, 1938, with removal of the appendix and gallbladder which contained a number of stones. Her convalescence was interrupted by phlebitis in the left leg, but was otherwise uneventful. Following this she continued to have substernal distress, but was up and about during 1939, largely relieved of her digestive symptoms but still having substernal pain on exertion. In April 1940, the anginal pain became more severe and more frequent with definite occlusion and infarction about May 1, 1940. She expired May 30, 1940, from heart failure, resulting from coronary disease and myocardial infarction.

COMMENT

In this patient, there was undoubted gallbladder disease and coronary disease. The gallbladder disease antedated the coronary disease, but the latter was not improved by surgical removal of the gallbladder. Did the presence of the two diseases, cholelithiasis and atherosclerosis of the coronary vessels, represent a fundamental derangement in the lipoid-cholesterol metabolism?

Improvement of the cardiac status as shown by reversal of an abnormal electrocardiogram to normal is illustrated by the following case.

CASE NO. 4

Mrs. E. M., 59 years of age, was admitted to the Shreveport Charity Hospital, January 30, 1941, complaining of pain in the upper right side of the abdomen. For the past two or three years, she had had a gaseous type of indigestion and in February 1940 had severe abdominal pain in the upper right quadrant radiating to the right shoulder blade. The pain recurred in August 1940, and several times since, accompanied by nausea and vomiting. There was also some precordial distress and occasional palpitation. The significant findings were: Normal nutrition, normal blood pressure, tenderness in the mid-epigastrium, heart not enlarged, rhythm regular, and no murmurs. Laboratory examinations showed normal urine, normal blood count, negative Kahn, mild hyperacidity, and an icteric index varying from 10 to 24. X-ray examinations showed normal chest, no renal calculi, and non-visualized gallbladder, following double dose dye technic. The electrocardiogram showed left axis deviation, sagging of the ST segments in leads one and two, upright but low T_1, and an inverted T_4. The tracing was interpreted as indicating coronary disease.

In view of these findings, operation was advised, but on February 15, 1941, she developed paroxysmal auricular fibrillation followed by slight elevation of temperature, nausea and vomiting. After this was controlled and following digitalization, operation was again advised and on March 10, under local anesthesia, cholecystectomy was performed by Dr. W. H. Brown, removing a small contracted gallbladder containing multiple soft yellow stones. Convalescence was rather uneventful and she was discharged on March 23, in good condition. Electrocardiograms made on March 13 and 17, showed left axis deviation, (minus 15), occasional auricular premature beats, T_1 now of good amplitude, T_4 normally upright and T_3 slightly inverted. The change in the electrocardiogram was interpreted as evidence of myocardial improvement.

The exact relationship of the gallbladder disease to the electrocardiographic changes is perhaps speculative. Undoubtedly this patient had or has an injured myocardium, which at least may have been aggravated by the gallbladder disease. Perhaps the diseased gallbladder was just sufficient strain to bring to light electrocardiographic evidence of myocardial disease, but with a healthy myocardium, no such electrocardiographic abnormalities would have been produced. From this and other cases it seems that Fitz-Hugh and Wolferth were justified in their conclusions that the majority of patients with coronary and myocardial type of heart disease, or with symptoms and electrocardiographic findings suggestive of these disorders, who have associated gall stones, are usually greatly benefited by a skillful and judicious gallbladder operation.

DIFFERENTIAL DIAGNOSIS

Even though there be no direct etiologic relationship between gastrointestinal and cardiac disease, there is one fundamental point of interest, namely the differential diagnosis between cardiac disease and certain gastrointestinal diseases. Here the physician is largely concerned with the differentiation of coronary disease with its substernal or epigastric pain and those disturbances of the gastrointestinal tract

which may simulate coronary disease. Herrick[8] has called attention to the many conditions that have been confused with coronary thrombosis and mentions the following abdominal conditions that he has seen mistaken for coronary disease: Gall stones, ulcer of the stomach and duodenum, carcinoma, pancreatitis, acute gastritis, spastic colon, and hernia of the diaphragm.

Time will not permit a consideration of the differential diagnosis of every disease of the gastrointestinal tract that might be confused with cardiac distress. Suffice it to say that a careful consideration of the history, physical findings and certain laboratory procedures, such as the x-ray and electrocardiogram, should make the differentiation. Usually it is not a difficult matter but on occasions will be quite baffling.

DISEASES OF THE ESOPHAGUS

There is one portion of the gastrointestinal tract, namely the esophagus, diseases of which may readily simulate cardiac disease but are often entirely overlooked. Both organs are in the thorax and both may have as their predominant symptom, pain which may be epigastric or low, intermediate, or high in position behind the sternum. The esophageal conditions that may be confusing are heart burn, due to reaction of acid gastric juice or contents in the lower esophagus, cardiospasm, diaphragmatic hernia, esophageal ulceration, tumor, or diverticulum.

Esophageal ulceration, tumor, and diverticula may produce substernal pain but it is more often related to eating than exertion and more prolonged in its attacks. Careful fluoroscopic observation of the esophagus during the swallowing of barium and esophagoscopy should establish the diagnosis.

Heart burn, cardiospasm, and perhaps central diaphragmatic hernia, all of which are characterized by esophageal pain, more often are concerned in the diagnosis. The predominant symptom in these conditions as in coronary disease is pain which may be epigastric or low, intermediate or high in position behind the sternum. The esophageal pain in these conditions is more often burning or sharp, well characterized by the term heart burn and less likely to radiate into the arms. The pain of coronary insufficiency is more of a heavy oppression or choking sensation, which may remain localized but is more likely to radiate to the left shoulder and arm. Coronary pain is invariably precipitated by effort, whereas esophageal pain is more often associated with eating. Generally the attack of esophageal pain is terminated by belching, with the release of the spasm. Esophageal pain is frequently precipitated by tobacco, which may also aggravate the pain of coronary insufficiency. The nitrites tend to relieve the pain in both conditions, so may add to the confusion in diagnosis. Atropine may relieve the esophageal pain but has no effect on coronary pain.

DIAPHRAGMATIC HERNIA

Diaphragmatic hernia of any type and particularly hiatus hernia, though not very frequent lesions, may be confused with coronary disease. The symptoms of hiatus hernia include dyspnea, cyanosis, palpitation, feeling of fullness or of suffocation and substernal pain, which may radiate to the shoulder. Symptoms from hiatus hernia usually begin at about thirty years of age and may readily extend into the coronary age. Often hiatus hernias are incorrectly diagnosed or overlooked, the correct diagnosis depending upon careful roentgenographic examination. The substernal pain due to hiatus hernia may readily be confused with coronary pain, since it may be of similar character and of the same distribution. The points in the differential diagnosis may be summarized as in table 1.

Larger diaphragmatic hernias, either traumatic or congenital, may also offer some confusion in diagnosis as illustrated by the case reported by Rigby.[8] In that instance a 22 year old white female complained among other things of severe attacks of palpitation, usually developing during the night and often causing her to get up out of bed. These attacks had been so disturbing that the diagnosis of heart disease had previously been made. Following

TABLE 1

Diaphragmatic Hernia	Effect of:	Heart
No constant effect	Exercise	Usually aggravates
Usually aggravates	Horizontal position	Little or no effect
Almost always aggravates	Large meal	Variable effect
Aggravates	Alcohol	Relieves
Aggravates	Tobacco	Aggravates
Frequent	Hematemesis	Never
Usually relieves	Nitroglycerine, Rest, Small meals, Belching	Usually relieves
May relieve	Atrophine	No effect
May relieve	Alkali	May relieve

repair of the large diaphragmatic hernia, all cardiac and other symptoms were relieved.

CONCLUSIONS

1. Cardiac disease frequently manifests itself by gastrointestinal symptoms.

2. Poor cardiac function results in impaired function of the gastrointestinal tract.

3. Gastrointestinal disease, particularly of the upper abdomen may produce functional cardiac disturbances and pain quite similar in character and distribution.

4. Gallbladder disease and coronary disease are frequently associated and gallbladder disease may at least aggravate existing myocardial disease.

5. The differential diagnosis of cardiac disease, particularly coronary disease and certain gastrointestinal diseases, requires careful study with full recourse to the necessary laboratory aids.

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DISCUSSION

Dr. Allan Eustis, (New Orleans): This has been a very interesting paper. I am particularly interested in the interrelationship of gallbladder disease and cardiac disease. In 1926 I analyzed 100 cases of myocardial insufficiency as to probable etiology. As I recall, 38 per cent had chronic gallbladder disease and many of them improved after removal of the gallbladder. Their myocardial insufficiency disappeared with other measures. I am inclined to think that many cases of chronic gallbladder disease may be due to insufficient absorption of vitamin B_1. At any rate, it is of interest to note that there is a certain amount of interrelationship between chronic gallbladder disease and myocardial disease. Epigastric pain in patients with myocardial disease is often the first symptom complained of, even before dyspnea. If the liver is examined the left lobe is enlarged and quite sensitive to pressure. Such persons often consult a physician for stomach trouble. At this time when so many of us make routine examination of the contents, it is well to caution against passing a stomach tube unless the heart is able to stand the strain of vomiting. While an intern at Charity Hospital, I experienced several minutes of anxiety when a patient almost collapsed on account of a weak heart muscle while I was passing a stomach tube.

THE TREATMENT OF INFLAMMATORY CONDITIONS BY THE X-RAY*

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The radiologist may be criticized for delay in publicizing the results of radiation in inflammatory conditions. This delay has not been due to disappointing results, for on the contrary, the results in the main have been astonishingly good. It is the part of wisdom, however, to place the treatment on a scientific basis, rather than on one of empiricism. The empiricism in radiation began with Antoine Henri Becquerel, a French physicist, who accidentally received in 1897 a radiation reaction. As malignancies were treated at that time with the flaming cautery, it was thought that radiation could be substituted for this older method.

Three years later the first x-ray treatment on an inflammatory process was given, and in 1906 Coyle was the first to treat carbuncles with the x-ray. In 1916 Dunham published an article in the American Journal of Roentgenology on the same subject. And from time to time Desjardins of The Mayo Clinic has published a number of articles dealing with radiation of inflammatory lesions. Others followed the lead of these pioneers, until now there is a splendid array of articles dealing with the subject of radiation in inflammatory conditions.

TYPES OF CONDITIONS TREATED

After a careful survey of these writings, coupled with my own experience, it is safe to say that there are a number of inflammatory conditions that respond satisfactorily to radiation, particularly the early stages of erysipelas, carbuncles uncomplicated by diabetes, sinusitis, early mastoiditis, acute lobar pneumonia, chronic or unresolved pneumonia, adenitis, cellulitis and lymphangitis, acne, early breast abscess, non-epidemic parotitis and paronychia.

Acne vulgaris probably leads the list of cases referred to the radiologist for treatment. Both the pustular and badly scarred types are benefited by radiation, as well as the deep-seated lesions and those where comedones are numerous. The pustular type, according to Ullmann, reacts to the x-ray by a diminution of the secretory activity of the epithelial cells of the sebaceous and sweat glands, in addition to the effect of the x-ray on the lymphocytes and polymorphonuclear leukocytes. It is noticed that oily and moist skins become dryer soon after treatment is begun, so the above theory of Ullmann is probably correct. Treatments are given at weekly intervals, for about eight to 10 weeks depending upon the type of case being treated. In certain patients, with care, 14 to 16 treatments may be safely given. It is fortunate that acne is so successfully treated with the x-ray, for there is no condition of adolescence that can lead so quickly to an inferiority complex.

To one who has had a furuncle, the relief of pain is a godsend, and the x-ray does this rather effectively within twenty-four hours, and frequently in five or six hours. If seen early, it is possible to abort the condition, but even in the later stages, the course is shortened, drainage is increased, and if incision is made, the healing of the incision is quickened.

The usual areas for recurrent boils are the back of neck and the axillae, and in this type of case the x-ray is of decided service, as a single suberythema dose will usually successfully prevent any new lesions.

Facial lesions must not be regarded lightly, on account of the danger of a spread to the vessels of the brain, and with the success shown in the x-ray treatment of lesions of upper lip, nose and face, it is suggested that these lesions be given immediate x-ray treatment.

Gas gangrene should first be confirmed by x-ray examination, which will show even a small amount of gas in the deep tissues. If positive, there should be no delay in beginning x-ray treatment. In a recent article, Col. Albert Bowen, who has done some remarkable work at Fort Sam Houston in the treatment of gas gangrene with

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the x-ray, admits that the method of action of x-rays in gas gangrene is not entirely clear. It is possible that the x-ray may reduce the toxicity of gas toxin, as an active ionizing agent. It is known, from experimental work, that hydrogen peroxide is produced in the tissues during the treatment, and this would serve to prevent the development of anaerobic organisms. The results in the treatment of *Bacillus welchii* (gas gangrene) have been good, almost to the point of claiming that the x-ray is a specific. If this be true, think of the wonderful benefit this knowledge will be to a war-torn world, particularly when we look back at the number of deaths from gas gangrene during the last war.

DOSAGE

Now as to dosage, in treating inflammatory lesions, it is invariably small, and of course, the earlier treated, the smaller the dosage. There is no hard and fast rule for actual dosage, each patient being considered a separate entity, but the general dosage in very acute inflammatory lesions is 100 roentgens, in subacute conditions 100-150 roentgens and in chronic cases not more than 250 roentgens. It is to be noted that the doses are small, not enough to produce alterations in the skin or gastrointestinal tract, and are in no wise to be confused with the massive doses used in the treatment of malignant conditions, where it is necessary to use the largest depth dose, without damage to the skin or normal adjacent tissues.

The striking results reported by Edsall and Pemberton in 1907, in the treatment of unresolved pneumonia by means of x-ray therapy, have continued to the present day. In fact radiotherapy is now considered the treatment *par excellence* for non-resolution following pneumonia. As in so many other conditions, the best results are obtained by early treatment. The excellent results obtained in unresolved pneumonia prompted investigators to begin treatment of lobar pneumonia with x-ray. An added reason for this step was the good result noted in the treatment of carbuncles and streptococcic cellulitis and other acute inflammatory and infectious conditions. In one series of cases, Powell had a mortality of less than 2.5 per cent in lobar pneumonia and 14 per cent in all types of pneumonia treated by x-ray. The usual dosage is 250 r, filtered with 3 mm. aluminum, with 130 KV to deliver 50 per cent of a skin tolerance dose. If a patient fails to respond, this should be repeated in 24 to 48 hours. There appears to be no contraindication to the use of x-ray in pneumonia, and the results seem to warrant its continuance.

In any x-ray treatment, it is well to bear in mind the sensitivity of the various cellular make-ups of the human body, each being a separate and distinct entity, and reacting in its own way to the action of radiation. In the following table arranged by Desjardins, the cells are arranged in the order of their susceptibility to the x-ray. With this table as a basis, it is easy to see why the lymphoid structures respond so readily to radiation.

SUSCEPTIBILITY OF CELLS TO X-RAY

Lymphoid cells: Lymphocytes found in the spleen, lymph nodes, blood, bone marrow, thymus and tonsils.

Polymorphonuclear leukocytes: Found in the blood or tissues.

Epithelial cells: Found in certain secretory glands, basal epithelium of the testes and ovary, basal epithelium of the skin and mucous membranes, alveolar epithelium of the lungs, bile ducts and liver and epithelium of tubules of the kidneys.

Endothelial cells: Found in blood vessels, pleura and peritoneum.

Connective tissue cells.

Muscle cells.

Bone cells.

Fat cells.

Nerve cells.

CONCLUSIONS

While the value of the x-ray in the treatment of certain inflammatory conditions has been proved, let me urge every radiologist to cooperate closely with the surgeon and internist while treating these patients. Surgical drainage may be necessary, and should be done at the appropriate time. In practically all of these patients, general nutritional measures should be instituted by the internist.

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CONSERVATIVE AND OPERATIVE TREATMENT OF FRACTURES OF THE NECK OF THE FEMUR*

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Fractures of the neck of the femur may occur at any age but the greater percentage is in people over fifty years. These fractures are due to a fall on the lateral side of the femur, especially in the area of the hip and the great trochanter. Because of the fragility of bone in older individuals and because of the lack of quick muscular coordination, a simple slip or fall may result in a direct blow at the trochanteric area with resulting fracture, while in younger individuals quick muscular response allows the individual to protect this area. Every elderly person who, on falling, complains of pain in the area of the hip or who is found to lie with the lower extremity useless, must be considered as having a potential neck fracture. It must be borne in mind that occasionally these fractures are associated with impaction and that the impaction is sometime sufficient to allow these patients to get around but with discomfort.

The clinical picture is a useless lower extremity which is usually held in external rotation and which is definitely painful to movement. The pain is at the hip area and muscle spasm, because of this pain, appears rapidly and formidably. There is shortening in the lower extremity and measurements taken from the antero-posterior spine to the internal malleolus vary from one-half to two inches as compared to the normal opposite limb. Since x-rays are almost universally available, it should be a simple matter correctly to diagnose this condition. Sometime the fracture line is not definitely seen. However, a distortion in Shenton's line (a curved line which extends along the medial side of the shaft of the femur across the inferior edge of the neck and along the inferior edge of the ascending ramus of the pubis) indicates the possibility of fracture even when dissolution in continuity is not visible.

The blood supply of the head of the femur is from ligamentum teres, capsular arteries and the nutrient artery entering the medullary cavity at the trochanters. The capsule of the hip joint is attached anteriorly between the greater and the lesser trochanter and posteriorly, it is attached on the neck at its outer end. Neck fractures can occur within or without the capsule of the joint. Treatment is not affected by the location of the fracture but prognosis as to bony union is materially different. If, within the capsule, the only remaining blood supply to the proximal fragment is from the ligamentum teres and as this supply is poor at best, non-union, fibrous union and even necrosis or death of the head of the femur may result.

Fractures through the femoral neck give a proximal fragment which is without muscular attachments and a distal fragment to which is attached all muscles with origin from the pelvis and insertion into this fragment. The gluteal muscles, adductors, iliopsoas and hamstring muscles produce upward displacement of the distal fragment. The iliopsoas muscle and the gravity pull of the entire limb produces the marked external rotation seen in these patients.

Statistics vary greatly, but a 10 to 25 per cent mortality can be expected. Death is caused by shock, cardiac or renal failure in the earlier phases, and hyperstatic pneumonias later.

Firm bony union can be expected in 20 to 70 per cent of surviving persons efficiently treated, with the remainder result-

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ing in non-union, fibrous union or head necrosis and head and neck absorption.

It is important in studying x-rays to consider the line of fracture. Magnuson, in his text on fractures, brings out this important point and it is again stressed by Watson-Jones in his recent book. Watson-Jones classifies neck fractures into two groups; namely, the abduction fracture and the adduction fracture of the neck of the femur.

The abduction fracture line runs obliquely from above, downward and medially; this course of direction gives two fragments with the axis movement in such a position so as to cause impaction. This type of fracture can be treated by some of the conservative methods and good results obtained in a large per cent of cases.

The adduction fracture, on the other hand, has a line of fracture running either transversely or in a line from above, downward and outward, giving an obliquity with axis movement of the distal fragment constantly away from the fractured surface of the proximal fragment. This type of fracture frequently requires one of the methods of internal fixation, because conservative measures fail to maintain positive reduction.

TREATMENT

Treatment consists of reduction followed by some form of fixation. The fixation methods are: (1) The Whitman spica cast; (2) double spica cast; (3) well leg traction splint; (4) impaction; (5) skin traction; (6) internal fixation. Selection of a fixation method is based on: First, the age and general condition of the patient; second, the line of fracture, as described above, and, third, by the equipment and knowledge of application.

Regardless of the type of fixation anticipated it is essential that a complete reduction be obtained. This can be accomplished by one of two methods: First, the Whitman method, which is the simpler of the two, usually suffices. The Whitman method consists of traction with sufficient hold above so as to produce countertraction; this overcomes override. Then, the limb is thrown into internal rotation which brings the fractured surfaces in contact. The abduction is necessary to maintain the reduction. If abduction is not maintained, the proximal fragment lying in the acetabulum will have an opportunity to work loose either above or below and there is little chance of maintaining reduction. In abduction, the superior surface of the neck is brought into forcible contact with the superior ridge of the acetabulum and in this way the proximal fragment is fixed; this prevents displacement.

The second method of reduction is the Ledbetter method. The principles behind this method are identical with the Whitman method but the maneuvers are slightly different. It is used when the Whitman method has failed. The hip and knee are flexed to a right angle and by pushing upward on the flexed leg, using the flexed knee as a fulcrum and the weight of the patient's body below as countertraction, hard traction can be applied. With the traction and countertraction so exerted, the next movement is extreme internal rotation; this, as in the Whitman method, brings the fractured surfaces into contact. Now, the hip and knee are extended completely and as they are extended the limb is brought to the position of extreme abduction.

An efficient method of ascertaining whether reduction has been obtained is the Ledbetter palm test. It must be remembered that in its origin the tendency of the limb was to external rotation. The heel of the abducted limb is placed into the palm of the hand and if no suggestion of external rotation occurs, it can be stated that satisfactory reduction has been obtained. This Ledbetter test does not discount the importance of check x-ray plates.

Local, general or spinal anesthesia is usually necessary for reduction when displacement is marked. Amytal and morphine give sufficient relaxation in the early stages of some cases where skin traction alone is used for fixation.

The Whitman cast is one of the older methods of fixation; the cast is applied after reduction on a fracture table or spica

rest and actually consists of a body cast incorporated with a long spica, the limb being held in the position of abduction. The ordinary spica does not suffice and will not maintain the abduction and internal rotation which is essential to the continued reduction of the fracture.

The double spica with both limbs in abduction is advocated; this spica is short, incorporating only the pelvis and both thighs but this makes a much harder nursing problem and is seldom used.

The well leg traction splint was introduced by Rogers Anderson about eight years ago. The application of this splint requires a Steinman pin insertion through the tibia of the injured limb. To this pin is attached a short leg cast; on the well leg a long cast, including the lower two-thirds of the thigh, leg and foot, is applied. After reduction, the splint is incorporated into the two casts and by set screws it is possible to pull downward on the injured limb and push upward on the well limb and in this manner relative extreme abduction of the hip can be obtained and maintained. This method is suitable in a selected group of individuals and requires either general or spinal anesthesia for its application.

A method of impaction was described by Cotton; it is seldom used today. This requires positive reduction by one of the two methods outlined above under general or spinal anesthesia and forcible impaction by covering the trochanteric area with a piece of felt and hammering with a large wooden mallet.

Skin traction is one of the oldest types of treatment next to sandbags. Straight pull by means of adhesive applied to the lower leg and a pulley over the end of the bed, called Buck's extension, has been in vogue for a long period of time. Following the World War, with the introduction of Russell or Australian traction, which is a multi-pulley traction applied by means of an overhead frame attached to the bed, skin traction has been more popular in treatment of these types of fracture. I have been able to obtain very satisfactory results provided the traction is correctly applied and provided that positive reduction has been obtained and constant daily check of the apparatus carried out. The patient is placed on a surgical bed with the overhead fracture frame attached. Mole skin adhesive plaster is applied to the lower leg; this plaster is attached to a spreader in the end of which is a pulley. When the overhead frame is completely assembled it is necessary to do a manual reduction of the fracture by the Whitman or Ledbetter method. If there is much displacement, general or intravenous anesthesia is necessary. In many cases, especially if the fracture is recent, it has been possible to obtain reduction with relaxation obtained by morphia with or without an oral dose of one of the barbiturates. After reduction has been obtained, the Russell traction is connected. Extreme abduction is necessary and it is wise to place the pulleys at least one foot away from the side of the bed; this will give sufficient abduction. It is easy to maintain internal rotation by placing a sling around the foot to which is attached a one or two pound weight, the rope going through a pulley on the overhead bar on the opposite side of the bed. For a few days, six pounds of weight is applied, at the end of the fourth day one pound is removed and at the end of another four days a second pound is removed. This leaves but four pounds of weight attached to the pulley. Because of the law of the multiple pulleys this four pound weight is supposed to exert an eight pound pull. The author has found that too much weight will tend to separate the fragments. This traction is continued for a period of from eight to ten weeks and repeated check x-rays are made, especially in the antero-posterior plane, to be certain that reduction has been maintained. Following removal of traction the patient is treated in the usual manner.

Skin traction by means of Russell or Australian method is applicable in individuals who are not good surgical risks. With this method of treatment very little, if any, anesthesia is necessary and a few hours after the manipulation and application of traction the back rest of the surgical bed

can be raised to a fair height. This method has been found to be very efficient in handling abduction types of fracture.

Numerous methods of internal fixation have been devised. One of the oldest of these methods was described by Martin, of New Orleans, over twenty-five years ago. Internal fixation was not universally adopted until Smith-Petersen of Boston devised a three pronged stellate nail which today is known as the Smith-Petersen nail.

Internal fixation has become the preferable method of obtaining fixation in fractures of the neck of the femur. If the patient is a fair or good surgical risk there is no doubt that internal fixation is the best and most positive type of immobilzaton. General anesthesia, spinal anesthesia, or some form of intravenous anesthesia is necessary. Also, it is wise to use some type of direction finder so that the nail may be placed correctly and that the nail be of sufficient length. I have found the May-Engel direction finder very satisfactory. Under some form of anesthesia a longitudinal incision, about four inches in length, is made from the great trochanter down the shaft of the femur and is carried through fascia, then bluntly to bone. The May-Engel finder is placed in position about three-fourths of an inch lower than the tip of the great trochanter. Check x-rays are made in both planes. The direction and length of the nail is now ascertained and the nail is easily driven into place. The incision is closed in the usual manner, dressings applied, and the patient is kept in bed for a period of two to four weeks. No fixation as a rule is used. However, in some cases it has been found necessary to place the limb in a Hodgen's splint, which acts as a cradle and prevents undue motion. Weight bearing is not allowed for at least twelve weeks.

Other forms of internal fixation have been devised. The Martin method of inserting wood screws is still used in the area around New Orleans. Kirschner wires inserted in varied directions are advocated by some surgeons.

Moore pins, consisting of three larger calibered Kirschner wires, or smaller calibered Steinman pins are inserted in a triangular manner, according to Moore's technic. Henderson, of The Mayo Clinic, uses a lag screw which seems to be efficient.

CONCLUSION

Regardless of the method of fixation, very complete reduction is essential for bony union. Internal fixation is the method of choice where it can be safely used. Internal fixation is a surgical procedure which carries risks and possible complications. Russell or overhead traction carefully supervised gives good results and is especially useful where internal fixation is contraindicated.

DISCUSSION

Dr. A. A. Tisdale (Lafayette): Dr. Simon has shown us again that the four "r's" in fractures are applicable to the fracture of the neck of the femur; that is, recognition, reduction, retention, and rehabilitation. In these fractures, irrespective of method of retention used, absolute reduction is essential. You can use excellent retention but if the fracture is not reduced properly the percentage of good results is certainly reduced.

It should be mentioned that there is a certain percentage of patients, irrespective of good reduction and good retention, who will have a necrosis of the upper fragment; that is, the head and part of the neck of the femur. In patients with necrosis, that is aseptic necrosis, some other reconstructive operation is indicated. Where you have a lack of equipment or lack of knowledge and experience, then it is better not to proceed with the operative method but to use the Russell traction with the extremity in marked abduction and internal rotation as shown in the moving picture. In using Russell traction, be sure to have reduction before putting traction on or good results will not be obtained. After the fracture position, do not put on too much pull so that the fragments will be pulled apart and thus result in non-union.

Dr. Isidore Cohn (New Orleans): Dr. Simon's paper was one of the most illuminating presentations of the mechanism I have seen and I could not help but smile at the splendid use that was made of the rubber balloons. It was really one of the most ingenious things I have ever seen. As I look back over a rather long experience, I remember the time when if you had a fracture of the neck of the femur it was thought there were just two things to look forward to; either death or permanent invalidism, in the days when the Hamilton or Liston splint was in use. Bed sores were a common experience if the patient lived long enough for that.

We do know that Whitman gave us the fundamental principles on which the modern treatment of fracture of the neck of the femur is based. Prior to Whitman's introduction of abduction method of

treatment of the neck of the femur, it was just a matter of pull and tug, without attention to action of the muscles. Therein lies the fundamental principle in the treatment of all fractures. I do not care whether general surgeon or orthopedic surgeon, no matter what a man calls himself, the man best qualified to treat the patient is the man who should treat him. The various methods Dr. Simon has shown us all have their distinct place and each must be used with the head and not with the machine.

There is only one point I want to take issue with. Dr. Tisdale said that before the use of Russell traction be sure that the deformity is reduced. I hate to disagree but too many times I have accomplished reduction after four or five days with Russell traction. I can show that is true, not from books but from personal experience.

In fracture of the neck of the femur another point is important. I hope Dr. Simon will dwell on that in closing; that is at the end of eight or ten weeks, just because a certain period of time has elapsed, does not mean the patient is ready for weight bearing. I hope the time will come when evidence of complete ossification will be depended on before weight bearing is allowed. Bad results are favored by too early attempts at weight bearing. This is particularly true now that we are going to have to deal with a great many fractured limbs as a result of possible war.

Dr. J. T. O'Ferrall (New Orleans): I was interested in this paper and wish to say a few words. I would like to stress one or two points because I believe that Dr. Simon read this paper primarily for the benefit of the general surgeon and general practitioner. They are the ones who see the majority of these fractured hips first. It is so often the case that the family and the attending physician will become somewhat excited when they see a case of suspected fracture of the hip, or one they believe is really fractured. They are in a great hurry to do something. I think that is an error. I believe in all of these cases, the vast majority of which are among aged people, that the primary thing to do, if it happens in the patient's home, as it often does, is simply apply Buck's extension with use of sand bags to prevent too much external rotation and let these people recover from the shock, which does occur in practically every case. There is no advantage in doing a nailing operation or applying a plaster cast in the Whitman position immediately. A delay of ten days or two weeks in no way influences the end results. I think it has been pretty well considered good judgment to let all of these old people recover to some extent from shock. It is my policy always in handling cases in the hospital also to put Buck extension with little weight, six or seven pounds, and wait a week or ten days or two weeks. Henderson, of The Mayo Clinic, lets the patient wait three weeks before doing more than that. My experience has been that there may be no shock for a day or two and then the patient may develop toxemia and so forth. If attempting to nail on the day of injury or application of conservative method of treatment, might mean the loss of a patient, it is best to let him recover from shock and then do reduction and the permanent treatment, according to whatever method is chosen.

Another point in the paper which I want to stress is the danger of too much abduction. I had that experience only last week, in reducing a fracture of the neck of the femur. After we reduced it and checked up with x-ray we found too much abduction and the position was not as good as it would have been with less. You can overdo the thing. From the standpoint of fixation by means of Smith-Petersen nails and various other methods, I personally prefer multiple nails, Moore pins, for several reasons. One is that there is no question in the world that the Smith-Petersen nail gives probably a fixation with a greater dimension of support but the Smith-Petersen nail displaces so much bone tissue within this narrow femoral neck that I believe in some instances the non-union is produced by that fact and interferes with circulation by putting too large a nail within the neck. I also think the Smith-Petersen nail operation is one that requires too much of an operation for old people, whereas with the Moore pins you can do the whole thing under local anesthesia and you do not have to give a general anesthetic.

Dr. H. Theodore Simon (In closing): I agree with Dr. Cohn in that Russell traction will give replacement. However I have made it a policy since there have been so many failures with Russell traction without manipulation, to insist on some type of manipulation. As a matter of fact it is easy to go through maneuvers of Whitman's manipulation. This is usually done, with morphine alone or with barbiturate narcosis, if necessary.

The other points in the paper which have been stressed by the doctors who discussed the paper could not be emphasized in this presentation, as it would have taken too much time.

FRACTURES IN CHILDREN*

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Fractures in children are common injuries possessing certain attributes not similar to like injuries in the adult. The anatomic and physiologic principles in-

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volved are common to both groups. It has long been recognized that the physician can only aid the recuperative powers inherent in living tissue, this being true of fractures in both adult and child. However, nature is more generous in her aid when the child is her patient. Fragments that are easier to handle, anatomic results that improve as the child grows older, better functional results, shorter periods of disability are but a few of the points differentiating fractures in children from those in adults.

TECHNIC

It has been our experience in conducting the Fracture Clinic at Touro Infirmary to adhere to a certain routine which appears to be the most practical and efficient. The technic is as follows: The patient, who comes to the clinic, is examined and a diagnosis of fracture, if gross deformity is present, or possible fracture is made. The patient's injured part is x-rayed, the orthodox antero-posterior and lateral views always being requested. At times an oblique view is necessary. Frequently, on ordinary x-ray plates, epiphyses will appear to have suffered a fracture dislocation and a fluoroscopic examination will be essential before definite diagnosis can be made. If a fracture is present and there is displacement, the patient is returned to the emergency room, given a general anesthetic and the fracture reduced. An attempt at reduction is made as soon as possible, as the swelling of the part affected is minimum, handling the part is easier, a better anatomic result can be obtained, and the general anesthetic relaxes the contracted and spastic muscles. After reduction the part is immobilized by anterior and posterior splints over a stockinet dressing, allowing a space about one inch in length between the sides of the plaster splints. Since more swelling of the part is going to occur, the dressing and plaster splints should not be too snug to produce any circulatory embarrassment to the part distal to the part affected. For this reason, plaster splints are preferable to casts in fractures of the forearm and arm. The patient is not allowed to leave the emergency room until he has entirely reacted from the anesthetic. The parent is told about watching the child for circulatory embarrassment in the affected part, as is manifested by blueness or coldness of the part, and also to return the child the following morning to the clinic. This serves a two-fold purpose: First, we assure ourselves that the splints are all right and that there is no circulatory disturbance of the part, and secondly, we obtain a check-up x-ray picture which tells if the reduction is satisfactory. If not, another attempt at reduction may be done at this point. For the small trouble of seeing the patient the following morning, we feel amply rewarded by saying that we have not had a Volkmann's ischemia in the past three years. One patient with Volkmann's ischemia, a white female, aged 9, was referred to the Fracture Clinic by a private practitioner and was seen by one of us (S. M. C.) four weeks after the initial injury. At the time of injury she immediately saw her physician who had an x-ray picture made. The film revealed an incomplete greenstick fracture of the lower third of the shaft of the right ulna. A plaster cast was applied to the forearm and the child was sent home and not seen for one week. At this time a pressure sore was present over the volar aspect of the mid-third of the forearm and she had the typical claw hand of Volkmann's ischemia. Need it be said that the child would have been more fortunate if no doctor had seen the injury originally. In this instance, a cast that was too tight, either originally or subsequently, was applied and not seen for one week. There are many pitfalls in the treatment of fractures that are unavoidable but at least there are a few that are escapable.

The post-reduction period of the child's fracture consists of returning to the clinic at periodic intervals, averaging one visit a week, until discharged. During this period checking of the cast, removing one splint and then the other in stages, wearing of slings, and physiotherapy and heat takes place.

PERSONAL EXPERIENCES

In this personal series of 100 consecutive fractures occurring in children 12 years old and under, several phases of fracture therapy are selected for comment. One appreciates that such a small group of cases is not sufficient to afford one to be dogmatic, but it does suffice to stress certain cardinal principles. These 100 children suffered 131 fractures, thus causing a multiple incidence in almost one-third of the cases.

The direct etiology of the fractures in this series is due to falls, the one exception occurring as the result of an automobile accident. Sixty-seven occurred on the right side and 64 on the left side. Sex does not play a big role for small children; 57 of these patients were male and 43 were females. Twelve bones were the site of various fractures, the shaft of the radius being the most common (table 1). There was not a single compound fracture in this series. As a rule compound fractures will not be as common in children as in adults for the etiologic factors differ widely in the two groups. Fractures incurred in industrial work have a high incidence of being compound, as do fractures in automobile accidents. Children are not exposed as much to these factors as are adults.

TABLE 1
SITES OF FRACTURES

Bone Fracture	Number of Cases	Total
HUMERUS		
Elbow	12	
Shoulder	1	
Shaft	2	15
RADIUS		
Base	14	
Epiphysis of base	2	
shaft (lower, middle and upper shaft)	28	
Head	1	45
ULNA		
Base	4	
Styloid	9	
Shaft (lower, middle and upper shaft)	20	33
METACARPAL	3	3
PHALANX	4	4
CLAVICLE	10	10
PELVIS		
Pubis	2	2
FEMUR		
Shaft	2	2
PATELLA	1	1
TIBIA		
Shaft	5	
Ankle	1	6
FIBULA		
Shaft	2	
Ankle	1	3
METATARSAL	3	3
DISLOCATIONS		
Head of radius	1	
Olecranon	3	4

There were four dislocations in this series, the elbow joint being the site in all instances. The head of the radius was dislocated in one patient and posterior dislocations of the olecranon in the other instances. Reduction was simple and immobilization averaged three weeks. There does not appear to be as prolonged swelling about the elbow joint as in adults.

One pathologic fracture was present in this series, it being a benign bone cyst, at the surgical neck of the left humerus in a 10 year old white male. Like most pathologic fractures in children, the diagnosis was not suspected until the x-ray was made. Formerly, rickets was considered a frequent cause of fractures in children. There was no evidence of rickets in a single x-ray film in this series.

Several bones are deserving of comment. The clavicle in the infant and young child was broken in this series in 10 cases. An anatomic reduction is not difficult to achieve, but the maintenance of the immobilization in some cases, will tax the patience and ingenuity of many experienced physicians. The posterior figure 8 bandage with a felt pressure pad is the commonest dressing that is used in infants and children under five years of age. In cases over five years of age, that is the age of possible cooperation, we employ the Desault bandage. A rather recent device, the Roger-Anderson clavicle splint, has been used and though it maintains a good anatomic reduction, the injured arm frequently develops an edema due to venous stasis after three or four days. Fortunately good functional results are the rule in infants suffering clavicular fractures.

The intra-condylar fractures of the humerus at the elbow and fracture of the capitellar epiphyses appeared in 12 cases. Closed manipulation was the method of choice. None needed an open reduction.

Fractures of the shaft of the tibia are noted in five children and of the shaft of the fibula in two. These revealed complete union in six to eight weeks, whereas the average time in adults is 10 to 12 weeks. In this series closed manipulation was the method employed, skeletal traction was not needed.

Only 38 of the patients required reductions, simple immobilization sufficing in 62 cases. It is probable that a slightly larger number of these patients may have been subjected to reduction if they were adults. Four of the 38 patients required second reductions. Of these four one child had an open reduction and muscle tissue was found between the ends of the fractured bones at the time of operation. Whenever a reduction must again be attempted it is advantageous to use the portable fluoroscope to check on the reduction before applying plaster splints.

Fractures at the wrist are immobilized in splints on an average about four weeks and fractures at the elbow about five weeks. A month old baby with a fracture of the femoral shaft was immobilized six weeks. No retardation of soft tissue development was present and at the end of this time a check up x-ray revealed sufficient callus to permit unrestricted activity.

Every fracture merits three different discharge ratings; namely, an anatomic, economic, and a functional rating. In the child, there are only two, the anatomic and functional. The most important is the functional, for this determines whether or not the child will go through life inhibited in using the affected part. The anatomic result need not be perfect to obtain a perfect functional result and this discrepancy can be even more pronounced in the child as compared to the adult. As has been long recognized, the long bones grow from the epiphyses at the extremities of the shafts and as the bone grows the anatomic deficiency is more and more minimized. This fact may lead some physicians into a sense of false security, for fractures requiring reduction or those poorly reduced may be let alone in hope that nature will, in time, overcome the deformity. This attitude will and has caused many uncalled for deformities and malunions. The rating number four represents anything between 85 and 100 per cent, the rating number three between 65 and 85 per cent, the rating number two between 35 and 65 per cent, the rating number one between 15 and 35 per cent, and the rating zero between 0 and 15 per cent. The idea of such a system of evaluating results was originally conceived at the Massachusetts General Hospital.

Our series show 77 cases had an anatomic rating of four, 19 cases a rating of three, and four cases a rating of two. Yet 98 cases had a functional rating of four, and two cases a rating of three as shown in table 2.

TABLE 2
ANATOMIC AND FUNCTIONAL RATINGS

	(85-100%)	(65-85%)	(35-65%)
Rating	4	3	2
Anatomic cases	77	19	4
Functional cases	98	2	0

Immediately one is impressed by the greater incidence of excellent functional results over the anatomic results. Such a high incidence of number four functional ratings is not as common in adults. The two cases with number three functional ratings are worthy of more detail.

CASE NO. 1

An 11 year old white male suffered a fracture dislocation of the capitellar epiphysis of the right humerus. He was carefully supervised from the day of injury and placed in acute and then ninety degree extension, but extension was markedly delayed, 110 degrees at nine weeks, and 135 degrees at 12 weeks. A period of 24 weeks elapsed from time of injury to that of discharge. There were marked calcium deposits in the soft tissues about the elbow, probably as the result of hemorrhage about the elbow. Not being able completely to extend the arm, a discharge rating functionally of number three and anatomically of number four was given.

CASE NO. 2

A four year old colored male sustained a fracture of the epiphysis of the base of the left radius, with a posterior dislocation of the epiphysis. This was reduced without difficulty and the part was placed in Cotton-Loder position. However, the patient was not brought to the clinic for five weeks, all this time the hand was in the Cotton-Loder position. At the end of eight weeks there was some

limitation of flexion of the fingers and a rating of number three functionally was given. It is probable that this rating could be changed to number four by this time. This case illustrates that one can not neglect basic principles in children, even though the margin is wider than in adults. It is not good practice to maintain a Cotton-Loder position over seven to 10 days.

PHYSIOTHERAPY

Physiotherapy is not employed as frequently as in adults, only 36 children of the 100 received any type of therapy and this was usually simple baking. It is better to permit active motion before passive motion for there is less danger of harm in this order of events. Passive motion was only employed in fractures about the elbow joint. One does not encounter the arthritis of disuse in immobilized fingers of children as contrasted to the adult. Again the muscles of children regain their tone more quickly and suffer less atrophy than do those of the adults. It is not unusual to see a cast or splints removed from a child and then see that child move the part freely within 24 hours.

SUMMARY

Fractures in children should be treated along anatomic and physiologic principles. An outline of the technic in the Touro Infirmary Fracture Clinic is described. Closed reduction is the method of choice, open reductions being rarely necessary. The period of disability is usually less in children. Results should be evaluated from two points of view, the anatomic and the functional. Perfect functional results are more frequent than perfect anatomic results, the former being the most important. Physiotherapy is not employed in children as frequently as in adults.

DISCUSSION

Dr. Isidore Cohn (New Orleans): In a discussion on the management of fractures in children there are several points which are not ordinarily stressed sufficiently. The first is the importance of the clinical examination and adequate records made at the time of the examination. Much information which is of value is obtained from the history, that is, the nature of the blow and the direction of the blow, as well as the pain and loss of function sustained by the individual. Following interpretation of the history, the examination should be made in a systematic manner consisting of inspection, light gentle palpation, mensuration, x-ray, and manipulation, the last not until the patient has been anesthetized. Inspection at once tells whether there is a loss of symmetry of the two extremities, the amount of swelling, ecchymosis, and the change in the axis of the limb, if there is any. Palpation of the radial pulse immediately informs us of the condition of the blood vessels. The loss of the radial pulse in injuries of the upper extremities should be carefully noted. Localized pain is of utmost importance. In the examination no effort should be made to manipulate the part until the patient has been completely anesthetized. The x-ray is of great importance if properly interpreted. In children the x-ray cannot be entirely depended upon because the epiphyses may not have been sufficiently ossified to cast any shadow at all. One must be familiar with the normal epiphyses in order to interpret injuries about joints in children.

In the presentation Drs. Copland and Finn have mentioned the fact that they were fortunate enough not to have many cases of Volkmann's ischemia; this is a matter for congratulation. It is evident that patients have been watched very carefully and that tight bandages were not applied. Attention should be directed, however, to the fact that Volkmann's ischemia develops in cases where the etiologic factor has not been a tight bandage, but where there has been interstitial hemorrhage and in some instances definite damage to the blood vessel itself, causing a contraction of the vessel. It is important that where hemorrhage is noted about the joint incision be made so that there will not be a disturbance as a result of compression of the muscle under the fascia.

In the after care of fractures in children or in adults it is important to remember not to use passive motion which causes pain. It is important to keep up the circulation of the parts as adequately as possible. Heat, gentle massage, and in proper time active motion are all the measures that are required.

In conclusion I would like to stress the one point which I think is tremendously important, and that is, that the clinical examination in children is of greater importance than anything else. The x-ray film is confirmatory evidence rather than the paramount factor. Whatever palpation is done should be gentle; localized tenderness should be accepted as a manifestation of great importance. Certainly this is true where no gross deformity exists, and where there is a particular loss of function.

Last, but not least, crepitus should not be sought for at any time, and certainly not while the patient is conscious. No manipulations are indicated until the patient has been anesthetized.

Dr. Paul G. Lacroix (New Orleans): The recognition and treatment of fractures have engaged the attention of medical practitioners in all ages. The axioms formulated and used during the earlier days of surgery held sway until Lucas-Championniere

and Lane noted that in a large proportion of cases deformity and loss of function resulted from an application of commonly accepted axioms of treatment.

The modern methods aim at: (1) A sufficiently perfect restoration of the form of the bone to allow of perfect joint action; (2) the preservation of the full vitality of the circulation and the neuro-muscular apparatus. In order to obtain these results, a knowledge of each method of treatment is necessary and at times a combination of the good points in each is essential.

That the end results are not what they should be in some cases may be attributed to: (1) Inadequate diagnosis; (2) inadequate treatment. Both of these should be eliminated.

If we are to obtain better results, we must be more accurate in terminology and be more exact in examinations. One should not send patients for x-ray examinations before the physical examination has been made. If he does he will be disappointed because of the failure of the x-ray to show a fracture through an epiphyseal cartilage. Surgery should not be subservient to one of its handmaids. Human reason must ever direct artificial or physical measures.

A properly taken history and a systematic examination which consists of inspection, palpation, mensuration followed by an x-ray examination should, in all instances, establish a diagnosis. We might just as well eliminate the so-called sprains if we want to obtain good results in injuries about the joints.

Proper reduction is the most important object in the treatment of fractures. If we make no attempt to obtain accurate approximation of fragments, the subsequent treatment will be valueless as far as perfect contour and good functional results are concerned.

The British Commission, after investigating a large series of cases concluded that "if the anatomical results be good, the functional result is good in 90.7 per cent; if the anatomic result be moderate or bad, the functional result is good in 29.7 per cent; if the anatomical result be bad, the functional result is bad in 53.3 per cent." Also the fracture committee of the American Surgical Association concluded that "good anatomical restitution of a broken bone results in better functional results than imperfect reconstruction and permits of a shorter period of disability."

Many bad anatomic results are finally followed by fairly good functional results, especially in children. In most instances, bad functional results are due to incomplete reduction. However, in a few cases poor functional results are due to adhesions and circulatory disturbances, the result of prolonged immobilization.

Early complete reduction, early superficial massage (not as essential in children as in adults) and early immobilization will give satisfactory functional results in the vast majority of fractures.

Dr. A. Scott Hamilton (Monroe): There are three points that I believe deserve special mention. One of these is a point which was particularly brought out by Dr. Cohn in his discussion and that is the essential, underlying cause of Volkmann's ischemia. Dr. Copland stated that in one case which he had seen, the patient might better have never seen a doctor. I must take issue with that statement. In a recent series of Volkmann's ischemia it was shown that 25 per cent of the cases never had seen a doctor and still developed Volkmann's ischemia. Too frequently blame for ischemia paralysis is placed on the doctor. This condition has recently been shown to be due in the first place to hemorrhage with resulting arterial pressure and loss of arterial supply leading to generalized muscular fibrosis. That condition can be caused by a too tight bandage but not necessarily so.

A second point I wish to emphasize is that in normal fractures of children, and especially lower forearm fractures, some are too prone to forget the old thought that in the treatment of fractures the joint above should be immobilized as well as that below. In Colles' fractures to put anterior and posterior splint is as useless as a loose board splint on the forearm. These are of no value whatsoever. Fractures treated in this way too frequently are displaced and the patient is blamed for the displacement and not the doctor himself.

A third point I wish to emphasize has been passed upon by the author and principally by Dr. Cohn but the negative part of it was not discussed. That is the use of local anesthesia. I mention it to condemn it. Anyone who uses it in forearm fractures in children is doing one of the worst things he can do. In the first place a child is one who is especially frightened by fractures. Fright leads to more intense muscular spasm. The use of a needle and syringe increases apprehension. Extreme force is commonly used for reductions; this should never be used unless absolutely necessary. The use of a general anesthetic, which has been mentioned by Dr. Copland and Dr. Cohn, is an essential thing. Only when there is definite contraindication for general anesthesia should local anesthesia be used.

Dr. Sidney M. Copland (In closing): I did not have the time to discuss the physical set-up at the Touro Fracture Clinic. We have a secretary who is familiar with fracture vocabulary; nurse, resident, intern, orderly and the man in charge of the clinic. Every patient has a fracture sheet filled out, as advocated by the American College of Surgeons. This is worth while mentioning because that gives a complete history.

The purpose of this paper was to point out the difference in fractures in adults and in children and with a subject as wide as this, it was impossible to cover it thoroughly in a few brief pages.

As to Volkmann's ischemia, I agree with Dr. Hamilton thoroughly as to the other causes besides a bandage which is too tight; however, you have only one conclusion to draw in the case, and that is that the bandage was too tight. The pressure ulcer is evidence of this fact.

The reason for describing the set-up at the Touro Fracture Clinic is because of the high percentage of excellent functional results. In fractures of the wrist we did not immobilize above the elbow; although I can not find fault with Dr. Hamilton's technic in immobilizing above the elbow, I must say that I am satisfied with the functional results we have had in these cases. In the face of such excellent results, I see no reason to change the technic.

SURGICAL MANAGEMENT OF GOITER*

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Although Louisiana and this section of the South is regarded as a region in which goiter is not endemic, goiters are seen frequently and their varieties are as numerous and types as severe as those found in goiter belts. Apparently goiters are increasing in frequency in this locality. In 1930-1931 one out of every 312 patients admitted to Charity Hospital of Louisiana had a goiter,[1] but in 1938 one out of 213 patients admitted to this hospital had a goiter.[2] Although this cannot be accepted as proof that goiter is increasing in frequency, it supports that general impression. Possibly two reasons account for this, one, that goiters are being recognized more promptly and more accurately and, secondly, that there is an actual increase in their incidence.

It has long been an impression that goiter is more common in certain parishes in Louisiana than in others. A survey by Olesen[3] showed that some parishes in Louisiana (St. James, St. Charles, Washington, St. Tammany) had as much goiter per capita as any region in the United States. There is some doubt that this survey is accurate since it was obtained by correspondence with state and parish health officers and, no statement was given concerning the actual method of estimation. Many goiters in this report were undoubtedly very minor enlargements of the thyroid gland. In Washington and St. Tammany Parishes for example, 47.5 per cent of the boys and 58 per cent of girls were reported to have goiter. Olesen found the instance of the enlargement of the thyroid gland in the northwest parishes of Louisiana (Webster) extremely low, as it was for the South in general.

In order to gain some impression as to the occurrence of goiter in different parishes and different localities of the State, the patients admitted in 1938 to the three charity hospitals in Lafayette, Shreveport, and New Orleans, with the diagnosis of goiter, were divided according to the parish from which they came. It is realized that the result of such an estimate cannot be accepted without reservation that there are many other factors than those taken into consideration by counting only charity patients in these hospitals. However, the results of this investigation were interesting and supported the report by Olesen that goiter occurred with greater frequency in the southern part of the State. In the southern parishes, the incidence of goiter expressed in cases per 100,000 was higher than in the parishes in the northwest part of the State. For example, from Orleans Parish there were 19 cases per 100,000; in Lafourche 21.5 cases; in Terrebonne 30.4; and in St. Bernard 54.8 cases per 100,000. In Tangipahoa, Washington and St. Tammany parishes, just north of New Orleans, the incidence of goiter so estimated was 22.7 per 100,000. From Plaquemines Parish, which is at the mouth of the Mississippi River and, which has a population of 12,000, there were no cases. Jefferson Parish had 14 cases per 100,000. These parishes are in the vicinity of New Orleans and it is realized that proximity to Charity Hospitals may result in comparatively high figures, but in the upper part of the State,

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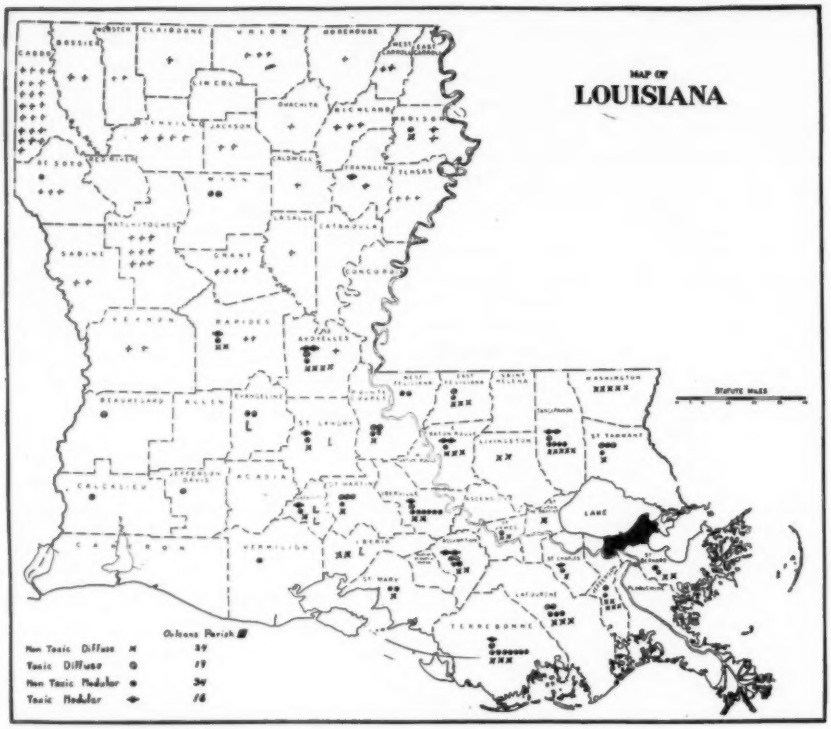

Fig. 1. Map showing distribution of goiter cases coming to three Charity Hospitals, at New Orleans, Shreveport and Lafayette, during a twelve month period (1937-1938). The higher incidence of goiter in certain parishes in the State cannot be explained on a greater population in those parishes. The incidence is greater per ten thousand people. Goiter is apparently more common in the coastal areas even though iodine in fish and food there is abundant.

three adjacent parishes, Bossier, Webster, and Claiborne, had only 5.15 goiters per 100,000 admitted to one of these charity institutions. These parishes are adjacent to a State supported Charity Hospital. In Caddo Parish proper, there were 14.7 cases per 100,000 and, in Jackson and Bienville respectively, 11.2 and 16.8 cases per 100,000. These figures while admittedly not to be accepted with conviction probably do show a slightly higher trend for the occurrence of goiter in the coastal parishes of the State.

THE SURGICAL SIGNIFICANCE OF GOITER

By goiter is meant either an enlargement of the thyroid gland or a hyperfunction of the thyroid gland with or without an enlargement. It is not necessary for the thyroid gland to be larger than normal for goiter to be present. As a matter of fact, very frequently, toxic symptoms of moderate to severe degrees exist when the patient has a gland of normal size. In these instances the gland is firmer in consistency than normal even though it may not be enlarged. Goiter is any enlargement of the gland or hyperthyroidism with or without enlargement of the thyroid.

In the teaching clinic, students not infrequently request consultation on a case diagnosed previously or by himself goiter, when the enlargement of the thyroid is apparent and not real. In a long thin individual with a dorsal kyphosis and a cervical lordosis, the anterior part of the neck may be unduly prominent, giving the impression of an enlargement of the thyroid gland when in reality it is normal in size and consistency. This frequently occurs and it is sometimes difficult to disabuse the patient

and even at times the student of the idea that the patient has a goiter. The patient may have been under the impression over a period of months or years that he had a goiter since there is a prominence in the neck even though the thyroid gland is normal. More confusing is the patient who does have a slight enlargement of the thyroid gland and who says she is nervous. A provisional diagnosis of goiter with toxic symptoms may have been made by the student when a more careful investigation may show that the nervousness of which the patient complains has no relationship to the thyroid gland and is in reality of such a nature that operation may result in an exacerbation of symptoms rather than in a cure. Such instances are seen frequently in the clinic. They are as instructive for teaching accuracy in the diagnosis of goiter as are cases of manifest goiter and they emphasize the necessity of restricting operation only in patients for whom operation is indicated.

The question as to which goiters should be subjected to surgical management and which should be subjected to more conservative therapy, is in some, but not all instances, controversial. It is not generally appreciated, certainly in lay circles, that in experienced hands a goiter operation is one of the safest of all major surgical procedures and, that the results are among the most gratifying following operations. I would outline the indications for operation for goiter as follows: (1) All toxic goiters; (2) all single adenomas of the thyroid gland; (3) non-toxic nodular or diffuse goiters large enough to produce pressure symptoms.

All toxic goiters deserve immediate surgical consideration. Surgical operation for toxic goiter takes precedence over another coexistent lesion even though the latter be of marked severity, such as a cancer, unless the coexistent lesion is an unavoidable emergency, for example, acute appendicitis. If, as existed in one of my patients, there is a carcinoma of the colon associated with an exophthalmic goiter, the exophthalmic goiter must be removed first and operation for the carcinoma and colon should wait. If a laparotomy is done first, an exophthalmic goiter crisis may result with a fatal outcome. In the case cited, the goiter was removed and subsequently the carcinoma of the sigmoid colon was resected. The patient made an uneventful recovery following both procedures and now lives some six years after the completion of these operations. The same analogy maintains when pregnancy and hyperthyroidism coexist. Any attempt to interrupt the pregnancy is likely to result in a hyperthyroid crisis. In all such instances a thyroidectomy is indicated no matter at what stage of the pregnancy. This has been conclusively shown by Mussey, Plummer and Boothby.[4] Even minor surgical procedures of an elective nature should never be done in the presence of hyperthyroidism. Fatal exophthalmic goiter crisis may follow the extraction of a tooth, the extraction possibly having been done in good faith with the idea that the foci of infection would be cleared up and that thereby the patient would be in better condition for thyroidectomy. The thyroidectomy should be done first. All toxic goiters should be operated upon soon after the diagnosis is made, not after a trial period of medication or conservative management. Such trials may result in prolonged chronic illness and most frequently fail to cure the patient. The risk for surgical operation may thereby be made greater. The risk of operation for toxic diffuse or exophthalmic goiter is slightly greater than that for toxic nodular or adenomatous goiter with hyperthyroidism, but again the morbidity for the patient with toxic diffuse goiter is generally greater than for the average patient with adenomatous goiter with hyperthyroidism.

Not all enlargements of the thyroid gland which are non-toxic deserve to be operated upon; certainly not diffuse colloid enlargements in young people nor colloid enlargements in adults which are small or moderate enlargements. Only when colloid goiters become extremely large do they deserve surgical consideration. When they are so

Fig. 2. Preoperative and postoperative views of patient with single adenoma in right lobe of thyroid gland. No hyperthyroidism was demonstrable and pressure symptoms were mild. However, single nodules of this size in the thyroid gland should be removed because possibly such a lesion is or can become malignant.

large that they produce pressure symptoms then operation becomes necessary to remove them and restore that patient to health. Nodular goiters are likewise not all suitable for operation. If the thyroid gland is slightly enlarged and diffusely nodular, operation is not indicated if systemic symptoms and local pressure symptoms are both absent. However, if there is one single nodule in the thyroid gland it can be regarded as a tumor, a true adenoma, and then operation is indicated because of the possibility that such a nodule is a malignancy or may become a malignancy or may become toxic. Of course a tiny single nodule does not have to be removed but when they are sizable, causing discomfort, they should be removed and such goiters can be removed with an exceedingly small risk.

There may be all degrees of enlargement of the gland and this enlargement may occur into the chest in greater proportion than it does externally. In these instances sometimes pressure symptoms are relatively marked and the external goiter may be small. A good example of this is the patient shown in figure 3. She had a relatively small goiter presenting in the neck with the story that she had difficulty swallowing and had not swallowed anything solid in six years. She had mild toxic symptoms. A fluoroscopic examination of the esophagus with barium showed obstruction of the esophagus by a substernal goiter. At operation the substernal extension was found to be impacted in the superior thoracic strait to such an extent that pressure on the esophagus was marked and dysphagia was an extremely severe symptom. Removal of the goiter resulted in a prompt cure so that the patient was able to eat solid foods for the first time in six years.

THE EVALUATION OF TOXICITY

It would be nice to have a test to determine accurately not only the degree of toxicity in hyperthyroidism, but also one which would establish with certainty the diagnosis in cases which are borderline and which are difficult to differentiate from tachycardia due to other causes such as neurocirculatory asthenia. The basal metabolic rate determination is still the best test for hyperthyroidism. It is a very reliable test. Cases with hyperthyroidism and with a normal basal metabolic rate are not common and whenever they do exist they are most likely to be adenomatous

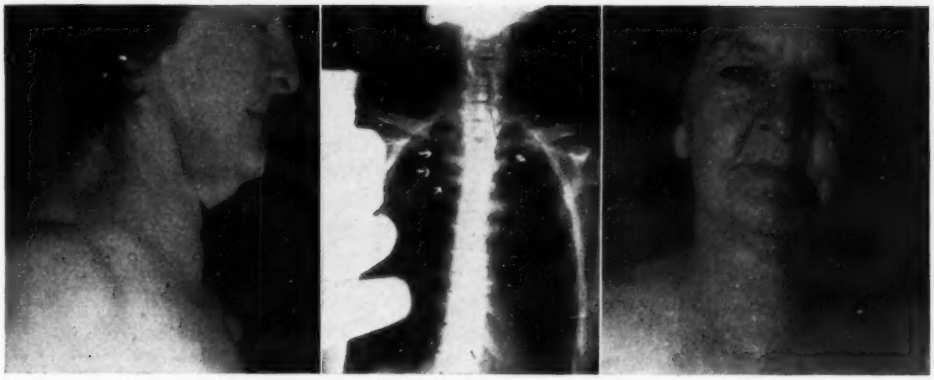

Fig. 3. Preoperative view of patient aged fifty, with goiter causing moderate toxic symptoms but severe pressure symptoms. She had not been able to swallow anything solid for six years. Fluoroscopic examination showed obstruction of the esophagus by the substernal goiter outlined in the x-ray by the arrows. The roentgenogram has also been retouched to show the displaced tracheal shadow. At operation a substernal goiter was removed. The goiter was firmly impacted in the superior thoracic strait. After operation the patient swallowed all foods without difficulty. (See fig. 4).

goiters with hyperthyroidism with a normal rate. When the adenomatous goiters are sufficiently large to be producing toxic symptoms, their removal is indicated anyhow. The basal metabolic rate can be relied on fairly well for estimating whether a patient is toxic if the factors which may influence it, such as hypertension, or fever, are taken into consideration. It would also be helpful to have a test which would indicate exactly the degree of toxicity in the individual case and the probability of a crisis following an operation at a certain time. Such a test of course would be excellent help for selecting the optimum time for operation in the toxic case. Numerous tests have been devised for hyperthyroidism. Most of them fail to show accurately the presence or absence of hyperthyroidism or determine its degree in a range broad enough to justify a sense of reliance on the test in individual cases.

Fig. 4. Postoperative views of patient shown in figure 3.

Many tests show trends in large numbers of cases. Such a test perhaps is the blood iodine determination. Blood iodine determination is not a feasible test except for a few institutions, because of the necessary special laboratory essential for its performance and because after all it shows more a trend in large numbers of cases but is not to be relied upon entirely in the individual case. The test is too difficult and too expensive to perform for the average institution. The liver function test has been advocated as a guide to the degree of toxicity and an indication as to when the patient is ready for operation. This test does not give sufficient information consistently to be relied upon as an indication of the improvement of the patient or as an estimate of the optimum time for operation.

Two years ago* a new test was described by Althausen.[5, 6] It has the advantage of being relatively simple and can be performed in any laboratory equipped to do accurate determinations of blood sugars. It is based upon the fact that in hyperthyroidism, sugars and salts are absorbed more rapidly from the gastrointestinal tract. Consequently the concentration of the substances in the blood stream becomes greater than in the normal individual for a similar period of time. In this test 40 grams of galactose is administered to the patient in 400 c. c. of water. Determinations for galactose are made on blood samples taken before administration of the sugar by mouth and at intervals of thirty minutes and an hour after the administration. In a normal individual the highest concentration of the galactose in the blood samples will be less than 30 milligrams per cent, whereas in hyperthyroidism concentrations of 70, 80, or over 100 milligrams per cent are frequently found. I have used this test in conjunction with the basal metabolic rate determinations and find its accuracy very consistent. In no instances has it been entirely wrong. In some instances in which the basal metabolism was less than plus 15, the test showed marked

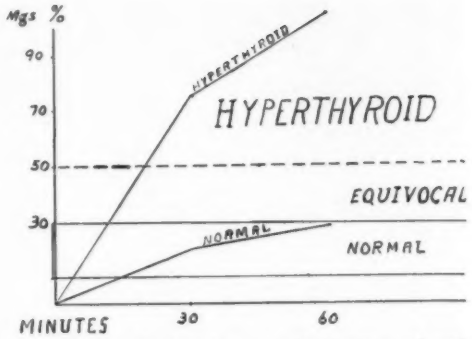

Fig. 5. Graph showing expected range of galactose concentration in the blood of normal and hyperthyroid individuals in the Althausen test. The test is very reliable and serves as a helpful adjunct to basal metabolic rate determinations in judging the presence of hyperthyroidism and its severity.

hyperthyroid reaction having over 70 milligrams per cent. This occurs in patients with adenomatous goiter with hyperthyroidism in whom the signs of toxicity are a rapid pulse, a very slight subjective nervousness, but with no weight loss and very little weakness; in other words, in patients with adenomatous goiters where cardiac symptoms are the predominant findings. In these instances the circulation of the blood is undoubtedly faster than in the normal individual and I wonder whether the explanation for the accuracy of this test is not the increase of volume flow of blood through the arteries of the intestinal tract, resulting in more rapid absorption of sugar used in the test. Not only is this test helpful in determining borderline cases, but it is also of help in showing improvement in the patient who is prepared for operation. This test in my experience is almost as helpful as the basal metabolic rate determination in indicating the presence or absence of hyperthyroidism or its severity. One criticism of it is its extreme sensitivity. For this reason a high test must not be regarded as unqualified indication of hyperthyroidism.

I have seen the Althausen test reported high indicating hyperthyroidism in cases in which the metabolism was normal where clinically the diagnosis was adenomatous

*At the meeting of the American Association for the Study of Goiter.

goiter with hyperthyroidism, but I have not seen it high (over 45) when the clinical diagnosis would not substantiate its indication of hyperthyroidism. Moreover whenever the basal metabolic rate and clinical findings both indicate hyperthyroidism, the Althausen test invariably and definitely indicates its presence.

SUMMARY

Goiters are seen not infrequently in this section of the South. They apparently occur more frequently in certain sections of Louisiana than in others and these regions of greater frequency are ones in which the people are presumably getting satisfactory amounts of iodine in their diets.

The indications for surgical management of goiter are: (1) All goiters with toxic symptoms; (2) all goiters with only one nodule or adenoma with or without toxic symptoms; (3) certain diffuse smooth or nodular enlargements of the thyroid gland without toxic symptoms when the enlargement is sufficiently great to cause local pressure symptoms.

The Althausen galactose tolerance test was discussed. It seems to be very accurate in estimating not only the degree of toxicity, but also in helping to distinguish borderline cases of hyperthyroidism from cases without hyperthyroidism.

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DISCUSSION

Dr. John H. Musser (New Orleans): I was very much interested in the distribution of goiter throughout the southern part of Louisiana. I would like to know if Dr. Mahorner has explanation, for example, as to why St. Tammany and St. Bernard should show such a discrepancy or why in the parishes near the end of the river, no cases at all were found. I think the figures, however, do show very definitely that we, in Louisiana, should expect always to find goiter much more frequently than has been the general concept. As a matter of fact I remember hearing some years ago the statement made that endemic goiter was almost unheard of. A few years afterward a survey of school children came out showing a surprisingly large number of children having at least a visible thyroid.

One thing more, and that is that it is an exception, in so far as my experience is concerned, to see a negro or negress with the toxic symptoms of goiter. I should like to ask Dr. Mahorner his experience. It is true we see enormous thyroids sometimes; I have in mind a negress seen at the hospital who has a goiter about as big as a pumpkin, with apparently no toxic symptoms whatsoever.

Dr. Mahorner showed on the screen the indications for operation. I think that his grouping was possibly a bit too dogmatic. You remember he listed all hyperthyroidism; I would qualify that I think to certain degrees. A certain number of people, I think, who suffer from intercurrent conditions, for example, would not make good operative risks.

I would like to point out also that you have to take into consideration who is doing the operation. There is no question that thyroidectomy is is an operation which requires skill and experience. Dr. Maes, I think it was, is responsible for the study made at Charity Hospital a few years ago, showing the mortality rate in the hospital; ten per cent for the patients operated on for thyroid disease, contrasted with The Mayo Clinic, for example, where the operation is done by one group or team of operators, the mortality was less than one half of one per cent.

I think there are a few people with mild symptoms of hyperthyroidism and sometimes those people will do just as well with x-ray or radium treatment as they would if they had an operation. Dr. Mahorner tactfully said he would not bring up controversy of whether to operate or give x-ray or radium treatment.

I would caution you also to be on the lookout for patients who have larval hyperthyroidism. I think we miss a great many of those patients; not as frequently as ten or twelve years ago before the time when basal metabolism examinations are made as routinely as are full blood counts, but certainly there are a considerable number of people who have nervousness, insomnia and are underweight and yet do not have the more or less classic expressions of hyperthyroidism.

Lastly, I would like to point out to you that in the examination of the patients often the student, and I presume the doctor also, forgets that the most practical way to feel enlargement of the thyroid gland is to stand back of the patient.

Dr. J. E. Heard (Shreveport): I feel that there is little doubt but that goiter in our community is

on the increase. Not having the exact figures, but judging from the increased number of patients we see at the Charity Hospital, there is either a decided increase in goiter or more patients are being hospitalized. We see much more goiter in the negro race than in the white race and, as should be expected, the majority of these cases are negro women.

In reference to indications for surgical interference, I can agree with Dr. Mahorner but should like to emphasize that the non-toxic nodular group with multiple nodules should be carefully watched, since a high percentage of these patients will at some time become toxic, and others will develop malignancy.

Laboratory tests, as to determining the degree of toxicity in toxic goiters are very unsatisfactory, as was stated by Dr. Mahorner. We feel that we can better evaluate a case by relying on clinical experience and repeated basal metabolic tests. As regards stage operations, I believe that one can tell better from the behavior of the patient on the operating table as to whether with the individual case should be staged or not. I have had no personal experience with the Althausen test, but feel that in a certain class of cases, those that are hyperthyroid with a relatively low metabolism, and borderline cases that this test is quite helpful.

A case of toxic goiter demands relief before any other type of elective surgical operation; nothing but an extreme emergency should receive operation before the hyperthyroidism is relieved. The mortality of subtotal thyroidectomy is one of the lowest of all major surgery, and should be around 1 per cent. These results however are only shown by men who are accustomed to handling these cases, as in the hands of the occasional operator the mortality is often quite high. In preparing a toxic goiter for operation do not lose sight of the fact that a high percentage of these persons have a damaged liver. In some cases the damage is severe, and this fact may be the difference between a good and bad result. Waller, Beaver and Pemberton, Boyce, Shaffer and others have called attention to liver damage in hyperthroidism, and Beaver and Pemberton state that all persons who died in crises and came to autopsy, showed acute degenerative changes in the liver.

In using liver function tests we are best satisfied with the Quick hippuric acid test.

Dr. Howard Mahorner (In closing): Regarding the cause of distribution of goiter in certain parishes, I have an idea—of course it can not be proved—that the cause of goiter is not something negative, absence of iodine for example, but something positive; a goiterogenic substance that affects certain people. The lower part of the State is built up by Minnesota soil and I wonder if we are getting here some goiterogenic substance brought down the river. It is possible that that may be the explanation.

Goiter occurs in the negro more commonly than in white people, in this locality. In Charity Hospital 45 per cent of the patients are negroes and 55 per cent of the goiter cases are negroes. I believe there is no greater toxicity in the negro and that the explanation as to why negro mortality is higher cannot be made on that basis. They are having the same goiters and the same management will result in similar mortality rates.

I would like to show one slide to emphasize something Dr. Heard said. No matter whether it is an infected tooth or malignancy, the toxic goiter precedes any other elective operation. In pregnancy, the goiter should be taken out if it is toxic, and at any stage of pregnancy, but pregnancy should not be interrupted. Otherwise there is danger of precipitating a hyperthyroid crisis. This slide shows a good example to emphasize this principle. This patient is aged 45 years. Her goiter for several years was toxic and there was loss in weight from 95 to 66 pounds. There was every sign of toxicity. On physical examination a mass was found in the abdomen and the patient stated she had passed blood by rectum. A barium enema disclosed a filling defect caused by carcinoma of the sigmoid colon. Thus there was cancer and toxic goiter in the same patient. In this instance the goiter was removed first. On her thirteenth postoperative day complete intestinal obstruction occurred. Palliative methods were not effective and a transverse colostomy was done two days later. Six weeks later I removed the carcinoma of the colon. She then had two openings in the colon; one in transverse and one in descending. The transverse colon opening closed spontaneously after the spur was cut; the descending colon opening remained open, spilling some of the contents. She thought she had enough surgery at that time and refused to go back for two years to have the descending colon closed. Then it was closed. These operations were done in 1935. This is a postoperative picture (slide). This patient, who lived in New Orleans at that time, has since moved to Shreveport; she telephoned me today and said she weighed 117 pounds and was well. This is some six years after operation for two serious surgical lesions which she had at one time.

PUBLIC HEALTH AND THE GENERAL PRACTITIONER*

J. H. MUSSER, M. D.†
NEW ORLEANS

The Department of Health is essentially and primarily a division of the state government which deals with the mass prevention of disease. It deals with preventive medicine in its broad aspects and even some of the narrower fields. Departments of health and boards of health are developed as result of the inability of the individual practitioner to combat the preventable diseases. It is obviously impossible for a busy medical man to study an outbreak of typhoid fever, or to become familiar with the details of the construction of a sanitary privy, or to engage in a campaign to control the growth and dissemination of mosquitoes. Consequently these functions have had to be taken over by people trained in this particular field and who are able to give their entire time to it.

The Department of Health is not engaged in curative medicine in any sense. It is true that the units of the departments of health throughout the country have been called upon to assist in the campaign against syphilis but here again it is merely because of the expense and the impossibility of the practitioner of medicine giving to a large number of indigent patients the required treatment. The Louisiana State Department of Health does the administrative work in the treatment of the syphilitic indigent but for the most part this work is carried out by the local physicians where they are available. This applies to most of the parishes. In some fifteen of them, however, the local doctors have for various reasons found it impossible to work in the syphilitic clinics, consequently the carrying out of the treatment in some of the towns of the state has devolved upon parish unit directors. In the care of the crippled child, curative or remedial measures are employed but such treatment is given solely by qualified practitioners of the state, selected from amongst the members of the Louisiana State Medical Society.

CONSULTATIVE SERVICES

The Department of Health is willing and anxious to give consultative service to the practitioner of medicine in any specific problem he may have, in matters of public health or even in the care of any given poor patient who may have one or another of the diseases which have a public health implication.

In the sanitary engineering department there are divisions having to do with the control of milk, of pure foods and drugs, of mosquito control, of securing pure water, the disposal of sewage and other problems which have to do largely with construction or investigation. The sanitary code, for example, requires the approval of the State Department of Health in matters having to do with such health measures as an adequate water supply and a satisfactory sewage disposal system for a community. These problems are on a large scale but even in the small problem of how best in one household to provide water and sewage disposal, help will be given by the Department of Health.

In the field of maternal health and child welfare, aided by very large contributions from the Federal Government, the state health organization is prepared to assist in the nursing services, in the care of the mother both before and after the birth of the child. It is prepared and has functioned as an organization to assist in the care of the child. That Louisiana has need of this particular service is exemplified by the infant death rate in the state. It might be said that there are 14 states which have a death rate of less than 40; these include Minnesota and Connecticut with figures approximately the same, namely 35. Going to the other extreme, Mexico has an infant death rate of 109, Arizona 94, Texas 67, South Carolina 66, and Louisiana 63. In other words, our state stands fifth from

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*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 21, 1941.

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana, New Orleans.

the bottom with 63 infant deaths for every 1,000 live births.

In the field of tuberculosis, the head of this particular division might be looked upon as a consultant who is willing and glad to help the practitioner in specific problems or in large scale efforts to control tuberculosis. The same statement applies to the division of pneumonia control. In the field of venereal diseases, again the division head and the parish health directors are anxious to see that all syphilitics who cannot afford to pay the private doctor, not only are treated but are followed up until the disease is cured.

EDUCATIONAL AIMS

In the division of crippled children, again through monies advanced by the Federal Government for the benefit of the crippled child, handicapped in any way, be it the after-effects of poliomyelitis, of burns, the disfiguring deformity of hairlip and cleft palate, or what not, the appropriate division is prepared to see that those children who cannot afford a private practitioner or the expense of prolonged treatment and of paying for this treatment, are given proper care by men engaged in actual practice who are skilled in their particular field.

The laboratory facilities of the Department of Health are open to all members of the state at any time. The laboratories are set up at five different centers so no one part of the state is far removed from a laboratory center where diagnosis can be made promptly of communicable diseases, and facilities are available in every way for the help of the doctor in the care of his patients who cannot afford these services. The list of the type and character of the examinations made in the laboratories, published in the official Quarterly Bulletin, increasing yearly by leaps and bounds, indicates that the doctors of the state are making use of laboratory facilities offered to them. The physicians of Louisiana should feel at liberty to call upon the laboratory at any time, anywhere, for help and assistance in elucidating some difficult problem in the diagnosis of communicable disease.

In the field of nutrition, educational talks and pamphlets are prepared for the benefit not only of the doctors but also for the laity. In the future, one of the important functions of the organization will be education. As of now, the various members of the staff are prepared to give educational talks to different lay groups or to medical groups on phases of public health control of disease and the prevention of conditions which arise through ignorance. When this particular division of medical education starts to function fully, the Department of Health will be ready to give the doctors information in the form of pamphlets or brochures which they in turn will make use of in disseminating knowledge of the preventable diseases and materially to extend the lecture-talk program.

OFFICIAL REPORTS

A plea is made for the more hearty cooperation of the doctors in the reporting of those diseases which by law are required to be reported. It is absolutely impossible properly to take care of epidemiologic problems unless it is known just what these problems are. The only way this information can be obtained is through the help and assistance of local doctors. Their assistance is early besought by the division of epidemiology.

We have endeavored to make more simple and easier the reporting of births and deaths. Heretofore there have been scattered throughout the state a very large number of registrars; often it was inconvenient and difficult for the doctor to discover which registrar should take care of the reporting of births and deaths that take place in his community. In the future these reports will go to the unit directors, which will simplify very materially the mechanisms whereby deaths and births are recorded. It might be pointed out that the totally unsatisfactory method that has existed in the past where births were recorded by registrars whose writing was illegible, whose spelling was hopeless and whose reports were often delayed, brought about a situation which made it almost impossible to deal expeditiously and promptly

with the sending of birth certificates and proof of the date of births to registrars of the selective service or to social security authorities. At one time last year there were over 3,000 unanswered requests for this desired information. Often it would take one worker several days to trace down one single authentic birth report, thus tying up the work of the department as a whole.

The Division of Public Health Statistics is a depository of the legal records of persons who are born and who die in Louisiana and is a source of statistical information on the status of the health of the people in this state. In carrying out its functions, this division is dependent upon the physician for the reporting of complete and accurate certificates of birth and death and morbidity reports of communicable diseases.

The importance of this division as a depository for the legal evidence of age, citizenship and parentage of people who are born in this state is forcibly brought out by the difficulty that many citizens are encountering in filing a delayed certificate of birth, that is, a certificate which is registered several years after birth. Although the Department of Health, in cooperation with health departments of other states and the Federal Government, has adopted a uniform nationwide procedure to be used in assisting persons in establishing proof of age and citizenship in order to gain employment or to secure benefits offered by the Federal and state governments, this is a long and costly procedure and we must look to the physician to report births properly so that in the future there will be no question concerning the legal status of citizenship.

I should like to emphasize at this time that the Division of Public Health Statistics, which you have known in the past as the Bureau of Vital Statistics, can act only as a service agency in assisting citizens to meet the requirements of their employers or agencies which are calling for acceptable proof of their citizenship and age. These requirements which seem lengthy, costly and which might sometimes even seem to question the integrity of the applicant, are not regulations that have been drawn up solely by the Department of Health but constitute minimum legal standards recommended by the Federal Government and all states.

As an agency which publishes and distributes statistical information on the status of the health of people in Louisiana, the Division of Public Health Statistics is again dependent upon the physician for the statistical items called for on certificates of birth and death and morbidity reports.

COOPERATIVE SERVICE WITH ALLIED BOARDS

The Department of Health, in cooperation with the state dental society, has inaugurated a new system whereby a plan for dental instruction proposed by the state dental society has been put into effect. This scheme is largely educational and provides for the training of the school children in dental hygiene. Instead of sending trailers all over the state to extract teeth of the indigent, the dental society feels, and in this we concur, that it would be very much better to prevent the horrible mouth conditions which are found so widespread throughout the state, rather than to attempt to take care of the end results which can be handled by almost any one, in other words preventive dentistry.

Just yesterday, as of the date this was written, an arrangement was completed with the president and secretary of the state pharmaceutical society whereby our inspectors and their inspectors would work hand in hand in order: (1) To prevent the sale of illegal drugs and preparations; (2) to prevent the sale, by those who are not qualified, of concoctions and compounds, which preparations can be made solely by registered pharmacists; and (3) to stop the making of compounds and sale of drugs which are prepared under unsanitary conditions.

COOPERATIVE SERVICE WITH ALLIED BOARDS

The Department of Health also works hand in glove with the veterinarians of the state in assisting them in their control of drugs and medicines sold for the use of domestic animals. These three cooperative endeavors have been suggested by the or-

ganized members of the several professions. We have been delighted indeed to follow out their suggestions and work with them.

THE SEVERAL DIVISIONS

In the reorganization of the State Department of Health there will be eight new divisions. This is subject to the action and approval of the Board of the Department of Health. These divisions are:

"1. *A Division of Local Health Services,* under the direction of a Division Chief, who is also the Assistant Director of the Department of Health. There shall be at least three associate chiefs of this division, who shall be in charge of district offices established for appropriate districts of the State. Each district office shall also have on its staff a generalized nursing supervisor, a sanitation supervisor and the necessary specialized consultants, as well as clinical help.

"2. *A Division of Public Health Nursing,* which shall be under the direction of the Chief Public Health Nurse, and which shall consist of a staff of statewide advisory staff nurses, generalized and specialized.

"3. *A Division of Administrative Services,* which shall be under the direction of a Division Chief, who shall have the necessary subordinate staff to serve all divisions of the Department in the fields of accounting, property supply and control, communication services, printing, duplicating, transportation and personnel management and records.

"4. *A Division of Laboratories,* which shall be under the direction of the Chief of the Division of Laboratories. There shall be a staff to coordinate and standardize the laboratory procedures of all central and branch laboratories under the jurisdiction of the Department. There also shall be the necessary chemists, bacteriologists, pathologists, serologists and technicians to perform adequately the laboratory work of the Department.

"5. *A Division of Public Health Statistics,* under the direction of a Division Chief. This division shall have three major sections, each under the direction of an appropriate section head, to cover the fields of registration, tabulation and analysis of public health reports; including birth, death, stillbirth, morbidity reports, marriage, divorce and reports of the Health Department's activities.

"6. *A Division of Public Health Engineering,* under the direction of a Chief Public Health Engineer. There shall be sections on water supply and waste disposal, mosquito control, malaria control, food and drug control and general sanitation under appropriate section heads. It shall be the duty of this Division to formulate policies and plans for the promotion of adequate control of general environmental sanitation in all its phases.

"7. *A Division of Preventive Medicine,* under the direction of a Division Chief and consisting of sections of epidemiology, tuberculosis control, venereal disease control, maternal and child health, crippled children services, nutrition and dental hygiene. Each of the sections shall be under an appropriate section head who shall be charged with the development of all specialized health programs to be administered through the local health units, or on a statewide basis in non-unit parishes.

"8. *A Division of Education,* under the direction of a Division Chief who shall plan for, and carry through, educational matters concerning the health and well-being of the community. This will be for the purpose of keeping physicians in the state informed as to latest developments in the communicable diseases as well as other diseases which come under the Department of Health and will also instruct the laity as well."

All of these divisions have been organized except the last, which will be done probably within the next six months.

DIVISION OF LOCAL HEALTH SERVICES

In the reorganization greater autonomy will be given to each of the local parish health units. In other words, the doctor in charge of the parish health unit is to be in complete charge of the unit subject only to a few rules and restrictions to make sym-

metrical the work throughout the State. The division heads in the central office will act largely in a consultative manner in order to help out the health unit directors with the various problems that may come up from time to time in their parishes. Lastly, there has been brought out some 40 pages of merit system regulations which, when made effective, will apply to all personnel of the Department, including parish health units. In other words, it can be concluded that after a person has served a probationary period and is found qualified for his or her job, employment will be permanent and not subject to changes in the political set-up of the State.

CONCLUSION

The Department of Health, through its Director, Assistant Director and all other personnel, is anxious in every way to cooperate with the medical profession so that the State of Louisiana may be given a health service which will be equal to, or superior to, any other state in the Union. The Department of Health will cooperate with all other state ancillary services. The Department of Health seeks the cooperation of public-spirited lay individuals in carrying out its problems. The hoped for attainment of a superior service can only be obtained with the help and aid and the assistance of the medical profession and the broad-minded laity.

DELAYED BIRTH REGISTRATION IN LOUISIANA

EDMUND F. RICKETTS
MONROE
AND
LAWRENCE A. WILSON
NEW ORLEANS

America, in its preparation for possible war, has created a demand for the birth certificate which is causing statistical divisions of state and city governments throughout the nation to be deluged with requests for the currently all-important documents.

In Louisiana, the New Orleans office of the Division of Public Health Statistics of the State Department of Health is receiving such requests at the rate of nearly 2,000 per month. Natives of the state are clamoring for this proof of citizenship, age, parentage and other information included in the birth certificate; and the unfortunate circumstance is that a large percentage of these requests cannot be met immediately because the desired information is not on file.

During the first half of 1941, 4,087 requests, or 37 per cent of the 11,150 demands received by the division, were from persons whose births had not been registered. These individuals are now put to considerable inconvenience and possible financial loss.

Requests to the Lousiana office have come not only from this state but also from widely scattered points throughout the nation, with an especially heavy flow from those areas in which defense industries are located.

The birth certificate, in these days of chaos, is often prerequisite to employment in private industries working on defense contracts. It is called for by the armed forces and civil service of the country and frequently is necessary for the establishment of certain claims under state or federal law. In many instances school admission regulations require the certificate. In addition to these and other specific occasions in which the birth certificate is demanded, the individual may simply want to satisfy that human desire for a feeling of security which comes from the definite knowledge that one's "papers are in order."

Regardless of the reason for the request, every citizen is entitled to the benefits which accrue from properly registered births and the Division of Public Health Statistics in Louisiana is making every effort to supply unregistered applicants with certificates through its delayed registration procedure.

Reasons for the appalling deficiency in Louisiana birth registration, exclusive of Orleans Parish, are fundamentally two in number:

First, although scattered local jurisdictions in Louisiana began to compile per-

manent records of local births and deaths before that date, it was not until 1914 that the State Legislature established a statewide depository with legal responsibility for collecting birth and death certificates—the former Bureau of Vital Statistics and now, with greatly expanded duties, the Division of Public Health Statistics. Louisiana's delay in assuming this important function means that the vast majority of her population, twenty-eight years of age and over—nearly 65 per cent of the total number—are without permanent records of their births in the files of the division. These deficiencies in birth registration will be of declining importance as a larger and larger proportion of the state's populaton comes to be made up, with the passing of the years, of those born in or after 1914. Gradually, moreover, a large number of those born before 1914 will come to be registered through the division's delayed registration.

The second factor, a matter of far greater ultimate significance, is the incomplete coverage of birth certificate files in Louisiana due to the negligence of hospitals, physicians and midwives in carrying out their legal duty to report to the State Division of Public Health Statistics those births which they attend. A recent check of the completeness of birth registration in Louisiana provides impressive documentation for this statement. This study, which covered the four months, December, 1939—March, 1940, reveals that approximately 12 per cent of the 15,450 births occurring in Louisiana, exclusive of the Parish of Orleans, during those months were not registered with the division.

A tabulation of these 15,450 births according to the class of attendant reveals that physicians in hospitals attended approximately 26 per cent of the four-month total, physicians outside hospitals approximately 34 per cent, and midwives about 40 per cent. A negligible percentage of the total number was handled by other classes of attendants, or by unidentifiable persons. Of the births attended by physicians in hospitals, approximately 2 per cent were not reported to the division. While the reporting record of hospitals may seem poor, that of physicians outside hospitals was worse, with 20 per cent of the births they attended unreported. Yet midwives, frequently isolated and often hardly literate, failed to report only about 12 per cent of the births attended by them.

Physicians of the state should bear in mind that while the Division of Public Health Statistics carries the legal responsibility for collecting birth certificates and maintaining permanent files of birth records, they themselves are legally responsible for reporting births. The division can only take steps to facilitate reporting by physicians, and it is currently engaged in an earnest attempt to make the physician's duty easier to perform. Without the cooperation of physicians throughout the state, however, birth registration in Louisiana must continue at an exceedingly poor level.

Aside from questions of responsibility for the inadequate coverage of records of births which have occurred since 1914, the division has, for more than a year, been confronted with two inescapable facts: first, the incompleteness of its own records of Louisiana births; second, the demand made upon private individuals by business and by governmental agencies for records clearly demonstrating the facts of birth.

These two realities have confronted not only the Louisiana Division of Public Health Statistics, but every state and city vital statistics office in the country, numerous state and federal agencies and many private industrial establishments as well. It was realized that many individuals would be required to present proof of facts of birth to more than one governmental agency or private organization; yet, at the same time, it was recognized that serious hardship would be worked by the diverse requirements of different agencies. The sound solution to this problem seemed to be to fix standards of proof which would meet the requirements of the largest possible number of organizations requiring substantiation of the facts of birth, and to have proof certified to by that agency in each

state which normally deals with such matters. The logical site for these certifying duties seemed to be the vital statistics office in each state or large city—in Louisiana, the Division of Public Health Statistics, for the state outside New Orleans; and the Orleans Parish Recorder of Births, Marriages and Deaths.

These duties have provided an opportunity for expanding the coverage of existing files and to check on the completeness of records of births occurring in or after 1914.

The demand made upon the division, as upon similar agencies in other states, was obviously for requirements of proof of the facts of birth which would stand up under legal scrutiny. After long deliberation and frequent consultations with governmental and private establishments and close study of relevant statutes and court decisions, the Louisiana Department of Health adopted standards comparable to those of certifying agencies in the states which now enjoy greatest prestige with organizations demanding unquestionable evidence as to birthdate, birthplace and parentage.

What are the requirements now effective in Louisiana for the registration of births subsequent to the month of their occurence? To explain these clearly, it is necessary to classify applicants for delayed registration into two broad groups: first, those applicants who have not yet reached their fourth birthday; second, those four years old and over.

For delayed registration of the first class, children under age four whose births were not registered during the months in which they occurred, the following steps should be taken, either directly or through the nearest local Health Unit:

1. Send to the Division of Public Health Statistics in New Orleans the child's full name, date of birth, place of birth, his father's name and his mother's maiden name, and ask that a search be made to determine whether the birth has been registered. The names of the child and parents must be those as of the time of birth since indices will not carry subsequent changes of names. Such a search is essential in every case in order that the Division may not accumulate a large number of duplicate certificates and that the inconvenience of securing a second certificate may be avoided. If a birth certificate is on file, the person acting on behalf of the child will be notified of that fact, or if a certified copy of the birth certificate has been requested, that will be sent. After a search of the Division's files has shown that a birth certificate is not on record, but only after this has been done, the child's agent will be sent a Certificate of Live Birth form with an affidavit form printed on the reverse side.
2. This certificate form should be filled in completely, the signature of the attendant should be obtained if that is possible, and one parent must swear before a notary public as to the truth of statements made on the face of the certificate.
3. After the certificate has been completed and an affidavit made by one of the parents, the certificate should be forwarded to the Division of Public Health Statistics in New Orleans. The birth will then be registered with the Division, and either a notification of registration or a certified copy, according to instructions given to the division, will be sent to the person acting in the child's behalf.

For those whose births were not registered prior to the fourth birthday, requirements are somewhat more exacting. The essential steps for delayed registration of applicants in this category, which may be taken directly or through the nearest local Health Unit, follow:

1. The applicant or his agent should send to the division the same information required for those persons under four years of age as outlined above. This information must be furnished to permit a search even though the applicant was born prior to 1914 and assumes that his birth is not registered.

After a search of the division's extensive indices has shown that no certificate has been filed previously, the applicant will be sent a Delayed Certificate of Birth form and detailed instructions regarding delayed registration.

2. The upper half of this delayed certificate form, which calls for only essential data constituting legal evidence of facts concerning the registrant's birth must be filled out and signed by the applicant before a notary public and returned to the Division of Public Health Statistics in New Orleans.

3. The Delayed Certificate form must be accompanied by true copies or originals of records supporting statements the applicant makes as to the facts of his birth. A wide range of records is acceptable, such as the family Bible, attending physician's office record, Church, school, insurance, employment, military service and many other records which most persons make in the course of their normal activities. There are three limitations on the number and kind of records which are accepted in proof of the facts of birth: (a) If at least one of the records supporting statements as to the applicant's birthdate, birthplace, father's name and mother's maiden name was made before the applicant's fourth birthday, only one additional record substantiating each of these four facts need be submitted—or a total of two records supporting each of the four facts mentioned above; if however, the applicant is able to secure no records made before his fourth birthday, three records supporting each of the facts must be submitted. (b) The second restriction is that no record made within the past five years will be accepted as one of the two or three records necessary as supporting evidence, although such a record will be considered when the application is reviewed by the division. (c) Finally, only one affidavit based solely upon personal knowledge of the facts of birth can be accepted in substantiation of each of the four essential facts mentioned above.

4. Upon completion of the above steps the applicant will receive notification that his birth has been registered or a certified copy of the Delayed Certificate of Birth, according to the instructions he has given to the division.

Thoughtful consideration of these requirements and the situations evoking them will bring realization that the division's standards are not severe. There is clear justification for differentiating between children under four and persons four years of age and older. In the first place, recollection of attendant and parent regarding a child under four is more likely to be clear and complete than where an older person is involved. Furthermore, aside from baptismal and family Bible records, few children of less than four have had occasion to make any permanent record of the facts of their birth. The fourth birthday, moreover, is too far removed from the school-entrance age to provide incentive for a self-serving declaration on the part of ambitious parents who would evade school-age laws. At the same time, however, far-sighted parents whose child's birth has not been previously registered have a relatively simple means of establishing the facts of birth. More liberal interpretation of requirements may also be expected regarding children between the ages of four and twelve.

Many members of the medical profession in Louisiana have been disturbed by the fact that the signature of the medical attendant does not alone suffice to establish the facts of a birth which occurred several years before the date on which registration of that birth is sought. There are, however, excellent reasons for the Division of Public Health Statistics' reluctance to accept the attendant's signature alone. Courts of law, it is true, have long treated a birth certificate made within a short time of birth as a highly privileged document in establishing points at issue in legal disputes. The courts have accorded this special recognition to the

signature of the attendant, however, not because the attendant was frequently, though by no means in all cases, a physician—a member of a highly respected profession, but because, with the certificate itself completed within a short time of the birth, it has been felt that there was little opportunity to forget the facts and less reason for unintentional misstatement.

The requirements surrounding supporting documents are a source of frequent irritation, yet they are not so unreasonable as they appear to be at first glance. The number of affidavits based upon personal knowledge alone must be limited because of the obvious ease with which self-serving affidavits may be obtained. Records less than five years old must be excluded in order to insure that supporting records were not made with a view to meeting the demand for proof of the facts of birth. Records prior to the fourth birthday are clearly entitled to preference over others, for records made within a short time of birth are less likely than others to have been exposed to the hazards of fading recollection.

Frequently it is American citizenship that has to be established, and established to the satisfaction of the impersonal hiring agent of some industry which may be subject to heavy legal penalties for failure to ascertain the citizenship status of its employes. Substantial material benefits under state or federal law often depend upon date or place of birth, or parentage, and that fact must be definitely proved to a governmental official who can ill afford to pay public funds to private parties who are not, under law, entitled to them. These representatives of public and private agencies must know definitely that statements about the facts of birth have been unquestionably proved. They can have such assurance only if the agency which certifies to the facts of birth has their full confidence. And confidence will come only if the Division of Public Health Statistics has acceptable standards of proof for the facts to which it certifies. Had standards unacceptable to the agencies requiring proof of the facts of birth not been adopted by the division, a Louisiana state Certificate of Delayed Birth registration would be of questionable value.

CONCLUSION

Despite occasional hardships for some individuals and the temporary overburdening of public agencies resulting from the present emphasis upon proof of the facts of birth, real and lasting benefits may be expected to accrue. The public generally and the medical profession in particular should come to recognize more clearly than before the importance of registering births at the time they occur.

NEW ORLEANS
Medical and Surgical Journal

Established 1844

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OFFICIAL RECORDS OF BIRTHS

Elsewhere in the Journal are two communications, both calling attention to the importance of recording births promptly and immediately after the birth of the child. The reason for these appeals lies in the fact that at the present time birth certificates are required by a goodly portion of the population of this country for various and sundry reasons. A man is called before a Draft Board and has to have exact proof of when he was born; people going up for governmental positions have to prove that they were born on a certain date; people seeking all kinds of defense positions must prove not only that they are Americans by birth, but also the date of their birth must be known. It is also prerequisite for social security benefits. There are many other possibilities too numerous to mention which require a birth certificate to show exactly when the applicant for the position, job, or what not was born. As a result of the neglect of physicians in the past the Vital Statistics Departments of state and federal governmental agencies have been literally swamped with requests for delayed birth registration certificates. In a recent number of one of the weekly news publications it was stated that the Bureau of the Census in Washington had had to put on 500 new employees to take care of this demand. In the Division of Vital Statistics of the Louisiana State Board of Health, the requests for such delayed birth certificates have literally overrun the staff, and, inspite of new recording machines to simplify the task and in spite of considerable increase in the personnel, necessarily there has been considerable amount of delay in filling these certificates.

Delayed birth certificates coming in after fifteen, eighteen, twenty, or twenty-five years often require hours of research, and the seeking of facts to prove the person was born on such and such a date requires a great deal of minute study of past records. These birth certificates that are made out years after birth, in order to be valuable to the U. S. Government, must have certain facts and proofs sworn to by competent individuals, which may seem to the applicant as being more or less red tape. However, the Government does require definite proof of the date of birth, and unfortunately will not accept the mere statement of the doctor who attended the mother at the birth of the child many years ago. This seems to be reasonable. A doctor with a large practice and a great many deliveries certainly cannot be expected to remember the exact date of the month, or even the year, in which one of his numerous adult patients was born.

It might be noted that the War Department has recently issued a memorandum to all present and prospective Army and Navy contractors and sub-contractors relative to requirements of proof by employees of their American birth. In this memorandum it is pointed out that the standard procedure must be employed. This procedure requires documentary evidence from two independent and different sources proving each of three facts:

1. When the man was born;
2. Where he was born;
3. Who the parents were.

In view of the fact that so many of these delayed birth certificates are absolutely essential to the individual, it might be well to spread the information that there is a jam in the departments of vital statistics in the offices of the various state health departments. Unless the certificate is absolutely essential at the time, people should not request them just at the present. Apparently there has been more or less a mass psychologic demand for these certificates even if they are not needed. A man who knows that many of his neighbors apply for birth certificates will think that he should have one immediately and puts in a request for it although it is not needed, or will not be needed for some time. It would be much better for these people to wait until the present congestion has been relieved.

On account of the present impasse and in order to obviate this in the future, it is earnestly requested that the physician fill out birth certificates promptly. Had this been done in the past, the present difficulty would not have arisen. There certainly will not be future trouble if the doctors will cooperate and will report the births of children that they have delivered at the time of the mothers' confinements.

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THE POLIOMYELITIS SITUATION

During the past three months, there has been occasioned a great deal of mental anguish in the minds of the laity concerning the dreaded scourge, poliomyelitis. The fear of the disease and the desire of information have resulted in the physician's being importuned continuously for advice what to do and for information of how widespread is the disease.

The following data can be given concerning the incidence of poliomyelitis in some of the southern states surrounding Louisiana. The disease has been extremely prevalent in Georgia, Alabama, and Florida. To the west of Louisiana, there have been very few cases. In Texas, for example, May through July, there have been reported only 19 instances of this disease; in Arkansas during the same period of time, 7 cases. On the other hand, in Georgia, June, July, and through August 9, there have been 373 cases, with Fulton County having the largest number. In Alabama, there were only 13 cases from January through May. Eleven new cases were reported in June and then the incidence rose extremely sharply, so that up until August 9, nearly 300 cases were reported. In the last week, for which the information is available, the week of August 9, 81 new cases had been found. The total for the state for the year up to August 14 equals 344 cases. In Florida, from January 1 through August 2, there were 185 patients found to have poliomyelitis.

In Mississippi, the incidence has not been great. In May and in June, there were six cases reported each of these months. In July there were 30 cases and so far, at the time this was written, on August 20, there have been only nine new cases reported. The two Mississippi counties, which are noted for their recreational facilities, and where many Louisianians go during the summer, have not reported any cases. Hancock County, with Waveland and Bay St. Louis and Harrison County, with Pass Christian, Gulfport, and Biloxi, have so far been free of poliomyelitis. In the adjoining county, Jackson, there have been two cases in Pascagoula.

In Louisiana, the incidence of poliomyelitis has been small. So far from the first of January to August 16, there have been 31 cases listed, as contrasted with 43 in the same period of time last year. No parish has had more than two cases except Grant

and Lincoln, with three each, and East Baton Rouge, with five.

Although Louisiana has been singularly fortunate in the year in which poliomyelitis is rife in having few cases, nevertheless, the poliomyelitis sason is now on, and it is quite possible that the disease may spread from the eastern southern states to those further west. It behooves the physician to be on the watch for these patients. It is not known definitely how the disease is transmitted, but epidemiologically, there must be personal contact in most instances. It would be wise to segregate for a few days at least, all children having fever of undetermined cause, mild respiratory symptoms, or other evidences of disease which can not be explained. These children should be kept apart and away from their playmates, and their brothers and sisters.

It is advisable, if possible, to make the diagnosis of poliomyelitis before paralysis has taken place. Especially is this important for it is during the preparalytic stage at that time only that convalescent serum or blood serum from an adult will be effective. When paralysis ensues, the virus is fixed in the tissues of the central nervous system and convalescent serum or chemotherapeutic agents can not reach the pathogenic virus that is producing the paralysis. After paralysis has taken place, all that can be done is to keep the child quiet and to keep the affected limb absolutely at rest, preferably with a splint. After a period of 6 weeks to two months, then active treatment may be instituted to assist in restoring the normal functions to the affected muscles.

CERVICAL RIB

A cervical rib is by no means unusual. It is often found in the routine roentgenologic examination of the chest, and often is entirely innocuous, producing no symptoms whatsoever. However, there are certain groups of people with cervical rib who have symptoms that may be, according to Edwards*, both neurologic and vascular. These symptoms may be constant or spasmodic. Because the expressions are of these two types, the possibility that numbness or pain in the lower arm or certain vascular symptoms may be dependent upon cervical rib is often forgotten, and the actual etiology of the condition is not discovered until a considerable period of time has passed.

The symptomatology of this condition includes numbness and tingling of the arm, usually the forearm and the hand. There may be muscular weakness and wasting in the hypothenar or thenar groups of muscles. The vascular symptoms include transient attacks of blanching or cyanosis of the fingers or even entire hand. The subjective and objective expressions of cervical rib may be initiated or exaggerated by variations in position of the neck. At times, there is pain in the neck, radiating to the shoulder, and once in a while the blood pressure may be lower on the one side, or there may be changes in the radial pulse on the affected side. In the examination of the patient, the rib may be palpated at times, or may be actually visible. Pulsation of the subclavian artery is often more pronounced on the one side than one the other. The symptoms of cervical rib, or of the scalenus syndrome, may be exaggerated by pulling the arm down, and having the patient turn their head sharply to the opposite side. The chin, however, is tilted towards the involved side, while simultaneously the patient takes a deep breath. This is known as the scalenus maneuver. According to this author, Edwards, the neurologic symptoms are dependent upon impingement of the lower trunk of the brachial plexus on the cervical rib. The question arises as to the mechanism of production of the vascular symptoms. It is quite likely that they depend on actual contact of the rib and the subclavian artery, but Murphy and others believe that the scalen-

*Edwards, E. A.: Nonarterial disorders simulating disease of the peripheral arteries. New England J. Med., 225:91, 1941.

us anterior muscle compresses the artery and nerve against the rib.

It is often the relatively common things that are forgotten. Many a patient has been thought to have a peripheral vascular disease of a single extremity, or to have a peripheral neuritis when the real cause is cervical rib, which can be visualized readily by x-ray, and which can be easily removed by operation.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of August the Society has been in vacation. No meetings have been held this month. The first fall meeting will be a special meeting called for September 29, 1941, at which time Dr. Edward H. Cary will be guest speaker. Dr. Cary will discuss in detail the plans and activities of the National Physicians' Committee. All members are urged to attend.

NEWS ITEMS

Dr. Charles J. Bloom recently conducted the yearly Round-Up, sponsored by the Parent-Teachers Association of Bay St. Louis.

Drs. Lewis A. Golden, Charles S. Holbrook, W. J. Otis and H. R. Unsworth were guests of the Lauderdale County Medical Society at a recent meeting of the organization at Meridian. Dr. Golden presented a paper on Recent Views on the Value of Shock Treatment in Mental Diseases: A Review of its Advantages and Limitations. Dr. Otis was the narrator of the evening.

At a recent meeting of the Executive Committee of the Society it was unanimously agreed that the Orleans Parish Medical Society invite the medical personnel of the armed forces of the United States, stationed in this City during the present emergency, to all scientific meetings, and extend to them the privilege of using the library.

Dr. Rudolph Matas was presented the jewel of the Order of Carlos J. Finlay as the sole survivor of the famous Chaillé Yellow Fever Commission, at ceremonies during the Lions International convention, July 22-25.

Dr. Ernest Carroll Faust was recently appointed instructor at the Army Medical School in Washington to assist in a special course on tropical diseases.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

NEW ORLEANS GYNECOLOGICAL AND OBSTETRICAL SOCIETY

The New Orleans Gynecological and Obstetrical Society and the Louisiana Gynecological and Obstetrical Society will be hosts to the Central Association of Obstetricians and Gynecologists at their thirteenth annual meeting, which will be held in New Orleans on October 2-4, 1941, with headquarters at the Roosevelt Hotel. Dr. H. B. Alsobrook, of New Orleans, is chairman of the local committee on entertainment.

The guest speaker for this meeting will be Dr. Phillip F. Williams, of Philadelphia. The scientific sessions will begin daily at 9:00 o'clock and will include papers on: The Value of Gynecography in the Diagnosis of Ectopic Pregnancy, Ruptured Ectopic, Uterine Bleeding Due to Benign Lesions, A Review of 75 Cases of Eclampsia with Particular Reference to Late Cardio-Vascular Renal Effects, the Use of Uterine Packs Impregnated with Sulfanilamide, A Study of Prematurity, Diaphragmatic Hernia in the Newborn, Office Curettage for Prolonged and Resistant Uterine Bleeding, and talks on Postgraduate Education.

In addition to this, a scientific program on obstetrics will be presented at the Charity Hospital at 2:30 p. m. Thursday, October 2. Dr. David I. Hirsch, of Monroe, President of the Louisiana Gynecological and Obstetrical Society, will preside at this meeting. On Friday afternoon, 2:30 p. m.,

a similar program on gynecology will be presented with Dr. Lucien LeDoux, President of the New Orleans Society, presiding.

Various entertainment features have been arranged for, and as these sessions will be open to all the members of the Louisiana State Medical Society, it is hoped they will make plans to attend this very outstanding meeting.

Lucien A. LeDoux, M. D., President.

RETURN YOUR INFORMATION CARD FOR THE DIRECTORY PROMPTLY

About September 1, an information card will be sent from the headquarters office of the American Medical Association to every physician in the United States and Canada. The information secured is to be used in compiling the Seventeenth Edition of the American Medical Directory.

Before filling out the information card, read the instructions carefully. Physicians are especially urged to state whether or not they are on extended active duty for the medical corps of the United States Army and Navy. Fill out the card and return it promptly whether or not a change has occurred in any points on which information is requested. If a change of address occurs before March 1, 1942, report it at once. Should you fail to receive a card before the first of October, write at once to the headquarters office stating that fact and a duplicate card will be mailed.

CIVILIAN DEFENSE

The U. S. Director of Civilian Defense has appointed the following Medical Advisory Board to assist the Medical Division of the Office of Civilian Defense:

Dr. George Baehr, New York, Chairman
Dr. Robin C. Buerki, Madison, Wisconsin
Dr. Elliott Cutler, Boston, Massachusetts
Dr. Oliver Kiel, Wichita Falls, Texas
Dr. Albert McCown, Washington, D. C.
Dr. Fred Rankin, Lexington, Kentucky

LOUISIANA DOCTORS IN MILITARY SERVICE

A study has been made by the Committee on Medical Preparedness of the number of doctors in the state, the ratio of the doctors to the population, and the number who have been called to military duty. Recapitulation of these figures is as follows:

Total population as of December 31, 1940	2,363,880
Number of physicians in active practice as of December 31, 1940 (included in this group are 17 full time health officers and approximately 150 interns)	1,957*
Physicians called for military duty to July 31, 1941	173
Louisiana ratio of physicians to population as of July 31, 1941: 1 physician to 1,325 persons.	

It may be of interest to the physicians of Louisiana to know the number of doctors in each parish together with the population of the said parish. It will be noted that the number of doctors per unit population is very much greater in large urban centers than in the parishes in the relatively small population group.

Parish	Population	Number of physicians in active practice
Acadia	46,260	26
Allen	17,540	8
Ascension	21,215	14
Assumption	18,541	9
Avoyelles	39,256	18
Beauregard	14,847	6
Bienville	23,933	12
Bossier	33,162	9
Caddo	150,203	182
Calcasieu	56,506	42
Caldwell	12,046	6
Cameron	7,203	3
Catahoula	14,618	4
Claiborne	29,855	15
Concordia	14,562	8
DeSoto	31,803	14
East Baton Rouge	88,415	97
East Carroll	19,023	5
East Feliciana	18,039	13
Evangeline	30,497	10
Franklin	32,382	15
Grant	15,933	6
Iberia	37,183	24
Iberville	27,721	16
Jackson	17,807	7
Jefferson	50,427	11
Jefferson Davis	24,191	12
Lafayette	43,941	43
Lafourche	38,615	19
LaSalle	10,959	12
Lincoln	24,790	14
Livingston	17,790	8
Madison	18,443	8
Morehouse	27,571	13
Natchitoches	40,997	21
Orleans	494,537	789
Ouachita	59,168	65
Plaquemines	12,318	8
Pointe Coupee	24,004	8
Rapides	73,370	78
Red River	15,881	9
Richland	28,829	12
Sabine	23,586	12
St. Bernard	7,280	1
St. Charles	12,321	7
St. Helena	9,542	2
St. James	16,596	7
St. John the Baptist	14,766	8
St. Landry	71,481	35
St. Martin	26,394	8
St. Mary	31,458	21

Parish	Population	Number of physicians in active practice
St. Tammany	23,624	14
Tangipahoa	45,519	29
Tensas	15,940	7
Terrebonne	35,880	15
Union	20,943	10
Vermilion	37,750	16
Vernon	19,142	8
Washington	34,443	15
Webster	33,676	22
West Baton Rouge	11,263	4
West Carroll	19,252	9
West Feliciana	11,720	3
Winn	16,923	5
Total	2,363,880	1,957*

*Figures given here are based on the Louisiana State Board of Medical Examiners, "Official list of physicians, surgeons, midwives, chiropodists, 1940."

PHYSICAL EXAMINATION OF THE DRAFTEE

There has just been completed a review of the registrants for the draft who were disqualified on account of some physical disability. Below are listed the number of rejections and the percentage each cause represents of the total number examined of each race. It is interesting to note that the rejections of the colored examinees are on the whole fewer than those of the white. Were it not for the high rate of syphilis and illiteracy, the rejection of the colored men would have been very much smaller than that of the white.

Reason for Rejection	—White— Number	Per cent	—Colored— Number	Per cent
Dental defects	531	12.42	171	6.69
Musculo-skeletal	495	17.17	171	6.69
Cardiovascular	180	6.24	93	3.64
Mental & nervous	114	3.95	49	1.92
Illiterate	101	3.50	928	36.31
Gonorrhea	10	.35	45	1.76
Syphilis	50	.73	345	13.50
Morally unfit	20	.60	13	.51
Eyes	175	6.07	54	2.11
Hernia	106	3.68	51	1.99
Ear, nose & throat	109	3.78	20	.78
Lungs	44	1.53	20	.78
Miscellaneous	145	5.03	72	2.82
Total	2080		2032	

F. P. Rizzo, Major, M. C.,
Medical Division Selective Service.

DRAFT EXAMINATIONS

There has been a great deal of newspaper and periodical discussion relative to the unfortunate situation in which men are placed who have passed the Draft Board physical examination and are rejected at the induction centers. Throughout the country as a whole an average of 12 per cent of the men passed by the Draft Board physicians have failed to meet the physical standard of the induction centers. Illustrative of the splendid care with which the Louisiana doctors are making the physical examinations is the statement that there has been only five per cent of rejections in the induction centers of Louisiana of those men passed by the Draft Board doctors. As the Times-Picayune says, "the obvious conclusion is that the state's Draft Board doctors have done an excellent job of determining and applying army specifications."

NEWS ITEMS

Dr. Leon J. Menville, president-elect of the Radiological Society of North American, was one of the guest speakers at the Midsummer Radiological Conference in the Rocky Mountains. At this Denver meeting, Dr. Menville was one of seven speakers; others included such men as Golden, Camp and Portman.

Dr. Lucien A. LeDoux, Councilor from Louisiana for the Southern Medical Association, attended a meeting of the Executive Committee of the Council in Birmingham on August 16.

The Southern Medical Association will meet in St. Louis this year on November 11-13.

The United States Civil Service Commission announces examinations for three types of medical positions—Junior Medical Officer, Medical Guard Attendant, and Medical Technical Assistant. Applications for Junior Medical Officer will be accepted until November 15, 1941, the others until further notice. The position of Junior Medical Officer pays $2,000 a year and will be filled at St. Elizabeth's Hospital in Washington. There are two types of internship: rotating and psychiatric.

Assistant Surgeon John C. Grier has been relieved at New Orleans and order to proceed to the U. S. Public Health Service Hospital, Fort Worth, for duty.

Senior Surgeon Calvin C. Applewhite has been relieved at New Orleans and ordered to proceed to Kansas City to establish headquarters as Director of Public Health Service District No. 7.

Passed Assistant Surgeon Arthur B. Price has been relieved at the Louisiana State Health Department and ordered to report to District No. 4, New Orleans, for duty.

The Physicians Casualty Association of America has made a reduction in the $25.00 per week accident and health insurance, of $1.00 per year; in

the $50.00 per week accident and health insurance, of $2.00 per year and in the $75.00 per week accident and health insurance, of $3.00 per year.

The American Neisserian Medical Society announces an annual prize of one hundred dollars, to be known as the P. S. Pelouze Award, to be presented to the person under thirty-five years of age who, in the opinion of the Committee of Awards, has made the outstanding contribution to the control of the gonococcal infections during the preceding year.

Nominations for the award should be sent to the Secretary not later than March 31 of each year. The winner will be announced at the subsequent annual meeting of the Society.

In the intense concentration of the nation's resources on the needs of defense, the American Committee on Material Welfare believes there is danger that the long fight to preserve the lives of American mothers and babies may lose its momentum. In the last few years the maternal and infant death rates in the United States have been brought down to record low levels and the committee considers it essential to hold these gains.

ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

The forty-sixth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held at the Palmer House, Chicago, October 19-23, under the presidency of Dr. Frank R. Spencer, Boulder, Colo.

The academy's program consists of one general scientific meeting on the morning of the first day, separate programs for the two specialties on alternate afternoons and instructional courses every morning beginning on Tuesday.

The feature of this year's general opening meeting will be a symposium on vertigo, with Dr. Francis H. Adler, Philadelphia, representing ophthalmology; Dr. William J. McNally, Montreal, otolaryngology, and Dr. Bernard Alpers, Philadelphia, neurology.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health showed that for the week ending July 19 the following diseases were listed in numbers greater than ten: 160 cases of syphilis, 43 of whooping cough, 29 of pulmonary tuberculosis, 21 of cancer, 15 of gonorrhea, and 13 each of pneumonia and typhoid fever. The typhoid fever cases were spread through the state; Union with three was the only parish to have more than two patients discovered with this disease. Two cases of poliomyelitis were discovered, one in Acadia and one in Ouachita. It is interesting that there were listed nine cases of typhus fever, four of which originated in Caddo Parish. The following week, the thirtieth week of the year which closed July 26, syphilis again was by far the most prevalent of the reported diseases, 162 cases being listed, followed by 22 of gonorrhea, 15 of pulmonary tuberculosis, and 14 of typhoid fever. This is really a remarkable record, the first time in many years that only four diseases were reported in the state in numbers greater than ten. Of the rare diseases, poliomyelitis was found, one case in Franklin and one in Orleans parishes. Of the seven cases of typhus fever, two came from East Baton Rouge and three from Iberia. For the week ending August 2, there were listed 222 cases of syphilis, 36 of gonorrhea, 24 of pneumonia, 22 of pulmonary tuberculosis, 19 of cancer and 17 of whooping cough. In this week three cases of poliomyelitis were found in Grant and one each in Claiborne and East Baton Rouge parishes. One case of anthrax was listed. For the week which ended August 9, the important reported diseases numerically were syphilis with 335 cases, gonorrhea with 27, pulmonary tuberculosis with 24, pneumonia with 16, whooping cough with 15, cancer with 14, and malaria with 10. This week a case of poliomyelitis was found in Orleans Parish and one in Tangipahoa. Typhus fever was found in Acadia, Caddo, Orleans and East Baton Rouge parishes, one case each.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending July 12 there were listed 125 deaths in the City of New Orleans as contrasted with 146 the previous week; these deaths were divided 77 white and 48 negro, with 14 of them occurring in children under one year of age equally divided between the two races. The following week there was an increase of 15 deaths; of the 140 listed, 81 were white and 59 negro, with 20 infant deaths, seven white and 13 negro. For the week which closed on July 26 there were 149 deaths. This increase over the previous week was due to the fact that one more negro died and eight more white persons. The 14 infant deaths were divided nine white and five negro. There was a fairly sharp increase in the number of deaths for the week closing August 2, there being listed 160 deaths. This increase was dependent entirely on a greater white mortality than for some weeks. One hundred and one white deaths occurred and only 59 negro demises. Of the 11 babies who died, there were seven white and four negro.

NURSES AIDES

The U. S. Director of Civilian Defense, Mayor F. H. LaGuardia, announces the training of 100,000 Volunteer Nurses' Aides during the next twelve months, in collaboration with the American National Red Cross and the major hospitals of the country. The program is in preparation for a great expansion in hospital beds which may be required during the National Emergency, at a time

when the already overburdened nursing facilities of civilian hospitals are seriously depleted due to the demands of our military and naval establishments and the increasing needs of public health and industrial hygiene services.

The growing deficiency in hospital personnel is now being met in part through the training of large numbers of paid subsidiary hospital workers by the NYA, WPA and other agencies. The training program for Volunteer Nurses' Aides is designed to expand the effectiveness of the trained nurse in hospitals, clinics and field nursing services by supplying her with intelligent assistants who can work under her direction.

The curriculum of instruction has been prepared by the Medical Division of the Office of Civilian Defense, the American National Red Cross and the Federal Security Agency. Eligibility is limited to women between the ages of 18 and 50 who have had at least a high school education or its equivalent and who are physically fit. The course will provide 80 hours of intensive instruction in a period of seven weeks. The first half of the course will be given in the local Red Cross chapter house in collaboration with local hospitals and nursing organizations. This will constitute the probationary period and will require two hours of instruction daily on five days a week for four weeks.

The second half of the course will consist of supervised practice in a hospital which has been designated by the Office of Civilian Defense and the Red Cross as a Training Center. The American National Red Cross will assist the hospital to provide competent instructors and nursing supervisors.

Those who complete the course will be enrolled in the Volunteer Nurses' Aide Corps of the American Red Cross with the assurance that they will play an important role in Civilian Defense. They will retain their membership in the Corps only as long as they continue to render adequate service during the period of the National Emergency. This is defined as 150 hours of volunteer service in a hospital, clinic or field nursing organization in at least one 3-month period in each calendar year.

The Office of Civilian Defense and the American National Red Cross will provide for this continuing service by arrangement with local hospitals and field nursing agencies. For this purpose, the Red Cross will maintain a Placement Bureau, which will allocate Volunteer Nurses' Aides to the following types of nursing service: Hospitals and clinics, visiting nurse (home visiting) agencies, health departments, school health services and industrial hygiene clinics.

By serving in this manner as assistants to qualified nurses, their training will be continued. In the event of sudden emergencies during a period of national crisis, they will then be immediately available for reassignment to hospital or field duty by the Office of Civilian Defense. There will be opportunity for some to serve as members of the Mobile Medical Field Units which are being organized in hospitals along both seaboards and in industrial centers in the interior, according to plans announced this week by the U. S. Director of Civilian Defense.

Volunteer Nurses' Aides will wear the uniforms and insignia of Civilian Defense. The new insignia for Nurses' Aides will be a red cross within the triangle and circle of the OCD, indicating that the Aide was enrolled and trained by the Red Cross to serve in Civilian Defense.

Applicants may enroll at the Red Cross chapter house and the courses will begin in each locality as hospital arrangements are completed.

JOSEPH JAMES WYMER

(1879-1941)

Dr. J. J. Wymer died Saturday, August ninth, at his summer home in Waveland at the age of sixty-two. Dr. Wymer was active in the medical life of the City of New Orleans. For many years he had been Director of the Health Division of the New Orleans Public Service. He had been a member of the Louisiana State Medical Society for over twenty-five years.

BOOK REVIEWS

Manual of Fractures, Dislocations and Epiphyseal Separations: By Harry C. W. S. deBrun, M. D., F. A. C. S. Chicago, Year Book Publishers, 1939. Illus; pp. 468. Price $3.00.

This 468 page manual with 150 illustrations is divided into four parts. Part 1 deals with the general consideration and the treatment of fractures in general. Part 2 covers specific fractures of various bones, including bones of the face and skull. Part 3 considers dislocations of all types. Part 4 is a presentation of special chapters on the use of plaster, healing time, disability rating, physical therapy and roentgenography.

The author has intentionally written a small condensed volume and, as such, this is a good, brief review of the author's experience as well as of many of the standard methods of treatment. Naturally some of the more recent advances are not included, but on the whole the book should prove worth while to those desiring a good sound condensed volume on fractures and dislocations.

RUFUS H. ALLDREDGE, M. D.

Rheumatic Fever: Studies of the Epidemiology, Manifestations, Diagnosis and Treatment of the Disease during the First Three Decades: By May G. Wilson, M. D. New York, The Commonwealth Fund, 1940. Por; pp. 595. Price $4.50.

Dr. Wilson's book is by far the most informative treatise on the subject of rheumatic fever that has been seen by the reviewer. Basically it is a compilation of data from years of experience Dr. Wilson has had treating these cases in the various hospitals of New York City and her ability to follow these patients over such a long period of time, thereby enabling her to give first hand information on the progress of the disease from onset to death, dwelling on the various manifestations that occur and correlating her clinical findings with post-mortem examinations. There are numerous graphic illustrations which simplify the statistical data.

Although the subject matter is derived mainly from case experience, there is a thorough inclusion of the knowledge of other workers in this field with a splendid bibliography of recent literature.

The book is divided in sections as listed in subtitle, each being carefully treated with special emphasis on the more important phases of the subject with summaries where needed.

From beginning to end the book is always readable and can certainly be considered a valuable addition to the library of every pediatrician and internist.

OSCAR BLITZ, M. D.

The Mask of Sanity: By Hervey Cleckley, B. S., B. A. (Oxon.), M. D. St. Louis, C. V. Mosby Co., 1941. Pp. 298. Price $3.00.

This most valuable and authoritative contribution to American psychiatric literature and thought comes of Dr. Cleckley's exhaustive study of and extensive clinical experience with a type of personality disorder which has met with much diversity and vagueness of opinion in regard to characteristics and classification.

The book has been written with the object of focusing the attention of the medical profession, psychiatrist and general physician alike, upon the recognition and care of the so-called psychopathic personality. The author not only adopts a restricted meaning for the term "psychopath" in distinction to the term commonly understood to cover nearly all mental aberration not included in the psychoses and neuroses, but to designate more properly the character of this, to him, quite distinctive type of disorder, he coins the term "semantic dementia", with its implications of affective disorganization, inability to comprehend emotional content or the ordinary meaning-aspect of life. This appears to be the outstanding and distinguishing characteristic of a class of mental variants whose intellect and rational responsiveness remain unimpaired, but whose emotional deficiency, lack of insight, and apparent urge toward social and spiritual suicide unfit them for participation in the normal activities and evaluations of life and constitute a problem for the law courts and general public with whom they so often come in conflict.

Believing that a detailed record of the lives of the patients is essential to a fuller understanding of this paradoxical type of mental deviation, the writer presents in detail several cases whose display of common characteristics strikingly supports his theory of a pathologic entity distinct from the more or less heterogeneous group in which it has heretofore found classification. An hypothesis is offered to explain dynamic factors which might influence the development of the psychopathology underlying the abnormality, but very little hope is held out in regard to the efficacy of present-known therapeutic agencies.

What is most needed at present is an understanding of this type of personality as definitely disabled and in need of care in special institutions, instead of the continual shunting between jails and closed wards which has hitherto been the only effort made toward a solution of the problem. Dr. Cleckley, by his stimulating and sympathetic treatment of the subject, has done much toward bringing about a recognition of the prevalence and seriousness of the disorder and in promoting a clearer definition of the psychopath which may prove of utmost value in the resolution of present legal and medical uncertainties concerning his status.

C. P. MAY, M. D.

PUBLICATIONS RECEIVED

The Commonwealth Fund, New York City: School Health Services, by W. Frank Walker, Dr. P. H., and Carolina R. Randolph.

Harvard University Press, Cambridge, Mass.: Lymphatics, Lymph, and Lymphoid Tissue, by Cecil Kent Drinker, M. D., D. Sc., and Joseph Mendel Yoffey, M. Sc., M. D., F. R. C. S. (Eng.).

Harvest House, New York City: The Complete Weight Reducer, by C. J. Gerling.

J. B. Lippincott Company, Philadelphia: Body Mechanics in Health and Disease, by Joel E. Goldthwait, M. D., F. A. C. S., LL. D., Lloyd T. Brown, M. D., F. A. C. S., Loring T. Swaim, M. D., and John G. Kuhns, M. D., F. A. C. S.

W. B. Saunders Company, Philadelphia: Abdominal Surgery of Infancy and Childhood, by Wm. E. Ladd, M. D., F. A. C. S., and Robert E. Gross, M. D. Clinical Immunology, Biotherapy, and Chemotherapy in the Diagnosis, Prevention, and Treatment of Disease, by John A. Kolmer, M. S., M. D., Dr. P. H., Sc. D., LL. D., L. H. D., F. A. C. P., and Louis Tuft, M. D.

Charles C. Thomas, Springfield, Illinois: Roentgen Technique, by Clyde McNeill, M. D.

William Wood and Company, Baltimore: Manual of the Diseases of the Eye, by Charles H. May, M. D.